Notices

From this update (Version 468), the file name of ThinkServer PSREF book has been changed to **ThinkServer.pdf**.

Please use the new permanent URL link: www.lenovo.com/psref/pdf/ThinkServer.pdf to visit ThinkServer PSREF book.

The former permanent URL of ThinkServer PSREF book (www.lenovo.com/psref/pdf/svbook.pdf) will be removed in the near future.

ThinkServer U.S.

Product Specifications Reference

Version 469, March 2015

ThinkServer® Servers

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Summary of Changes

This section describes the changes made in this version of ThinkServer PSREF and in previous version. This edition might also include minor corrections and editorial changes which are not identified.

March 4, 2015 - Version 469

Additions in this update

- New ThinkServer TS140 models announced March 2015 .

February 11, 2015 - Version 468

Additions in this update

- New ThinkServer RD350/RD450/RD550/RD650 models announced February 2015 .

January 28, 2015 - Version 467

Additions in this update

- New ThinkServer RD550 models announced December 2014 .
- Add 2nd CPU PN on RD550

January 7, 2015 - Version 466

Additions in this update

- New ThinkServer RD650 models announced October or December 2014 .
- New ThinkServer RD650 Options sheet.
- New ThinkServer RD550 Options sheet.
- New ThinkServer RD650 Overview sheet.

Changes in this update

- Update specifications:
  Add M.2 SSD support on RD650 and RD550.
  Add chassis intrusion switch on RD650 and RD550.
  Update AnyRAID support information on RD650 and RD550
  Update expansion slots specification on RD650 and RD550.
  Update rear disk bay spec on RD650 and RD550.
  Add internal storage supporting list for RD650 and RD550
  Add 2nd CPU PN on RD650
- Remove some RD650 and RD550 SVT models.

December 17, 2014 - Version 465

Additions in this update

- New models
  New ThinkServer RD450 models ann December 9, 2014:
  70DA000XUX,70DA000YUX,70DA0010UX,70DA0011UX,70DA0012UX,70DA0013UX,70DA0014UX,
  70DC001CUX,70DC001DUX,70DC001EUX,70DC001FUX,70DC001GUX,70DC001HUX,70DC001JUX,
  70DC001KUX,70DE000HUX,70DE000JUX,70DE000KUX,70DV0008UX,70DV0009UX,70DV000AUX
- New models
  New ThinkServer RD450 models ann December 9, 2014:
  70D6001YUX, 70D60020UX, 70D60021UX, 70D60022UX, 70D60023UX, 70D60024UX, 70D60025UX,
  70D60026UX, 70D8001TUX, 70D8001UUX, 70D8001VUX, 70D8001WUX, 70D8001XUX,
  70D8001YUX, 70D80020UX, 70D80021UX

December 3, 2014 - Version 464

Additions in this update

- New product
  ThinkServer RD450 ann December 2, 2014.
- New product
  ThinkServer RD350 ann December 2, 2014.
  On RD450, RD350 pages, add 2nd CPU option PN on single processor models

November 12, 2014 - Version 463

Changes in this update

- Updates RD650 and RD550 network interface specifications.

September 30, 2014 - Version 460

Changes in this update

- Updates RD650/RD550/TD350 environmental specifications, add 45 ° C continuous operation configuration limitation.
- Remove RD650 model 70CV0000US.

September 10, 2014 - Version 459

Additions in this update

- New product(s)
  New ThinkServer TD350 announced September 2014 (70DG-1, 70DG-2, TD350REL-1)
  New ThinkServer RD650 announced September 2014 (70D0-1, 70D4-1, 70DR-1, RD650REL-1)
  New ThinkServer RD550 announced September 2014 (70CV-1, 70CV-2, 70CX-1, RD550REL-1)

August 19, 2014 - Version 458

Additions in this update

- New model(s)
  New ThinkServer RD650 models announced August 2014
  New ThinkServer RD550 models announced August 2014

April 15, 2014 - Version 452

Changes in this update

- Selected RD340/RD440/RD540/RD640 models are withdrawn and labeled as red

February 25, 2014 - Version 450

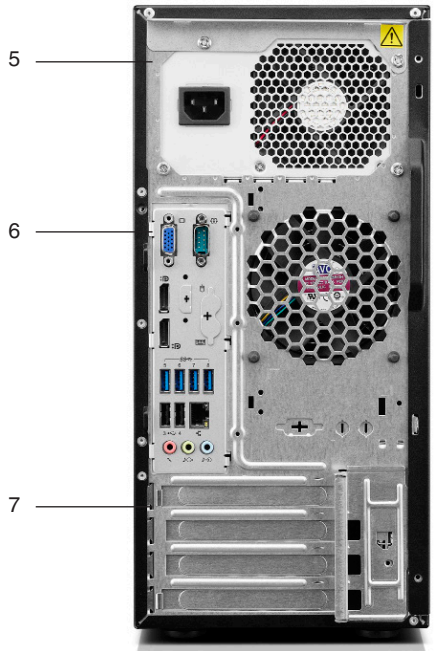
Additions in this update

- New section
  ThinkServer Servers, contains all ThinkServer servers pages
- New section
  ThinkServer Storage, contains ThinkServer storage pages
- New section
  Summary of changes, contains changes list for the three most recent versions
- New product
  ThinkServer TD340 ann January 21, 2014. Includes the following pages:
  ThinkServer TD340 Overview
  ThinkServer TD340 TopSeller Models - 70B7 - I
  ThinkServer TD340 TopSeller Models - 70B7 - II
  ThinkServer TD340 TopSeller Models - 70B7 - III

ThinkServer TS140 - Overview

Front view

1. Optional slim optical + 3.5" drive bay in standard 5.25" bay
2. Optional 3.5" hard drive bay
3. Power Button
4. Front I/O: 2 USB 3.0 (blue)



Rear view

5. Power Supply:
   280 watts 80 PLUS Bronze/450 watts 80 PLUS Platinum
6. Rear I/O: 2 USB 2.0
   4 USB 3.0(blue)
   1 serial (9-pin)
   1 RJ-45 (GbE)
   1 line-in
   1 line-out
   1 microphone-in
   2 DisplayPort (for Intel HD Graphics)
   1 VGA (for Intel HD Graphics)
7. 1 PCIe 3.0 x16
   1 PCIe 2.0 x1
   1 PCIe 2.0 x16 (x4 elec)
   1 PCI

Internal

- One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3, Core-i3 4000, and Pentium families
- 4 DIMM sockets, supports up to 32GB ECC UDIMM memory
- Up to four 3.5" hard drive bays, two 3.5" hard drive bays standard

Mechanical

- Raven black color; metal case
- Rack-mountable to 4U
- 6.89"W x 16.97"D x 14.76"H
- 175mm W x 431mm D x 375mm H
- 28.66 lb (13kg) max configuration
- 25-liter

ThinkServer TS140 (70A4) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A4001LUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001MUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001NUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001PUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1
70A4001QUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	Foundation	1
70A4001RUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	Essentials	1
70A4001SUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD	No	No	280W	No	No	1

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

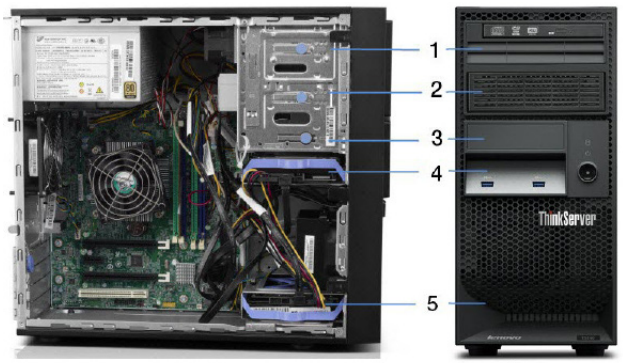
● ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A4) - TopSeller (March 2015)

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A4006EUX	Xeon E3-1246 v3 4C/3.5GHz/8MB/1600MHz/	1600MHz ECC	8GBx4	Intel HD P4600	1	2x2TB 3.5" SATA	DVD±RW	No	No	280W	No	No	3
70A4006FUX	Xeon E3-1246 v3 4C/3.5GHz/8MB/1600MHz/	1600MHz ECC	8GBx2	Intel HD P4600	1	2x1TB 3.5" SATA	DVD±RW	No	No	280W	No	No	3
70A4006GUX	Xeon E3-1226 v3 4C/3.3GHz/8MB/1600MHz/	1600MHz ECC	8GBx1	Intel HD P4600	1	2x500GB 3.5" SATA	DVD±RW	No	No	280W	No	No	3

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

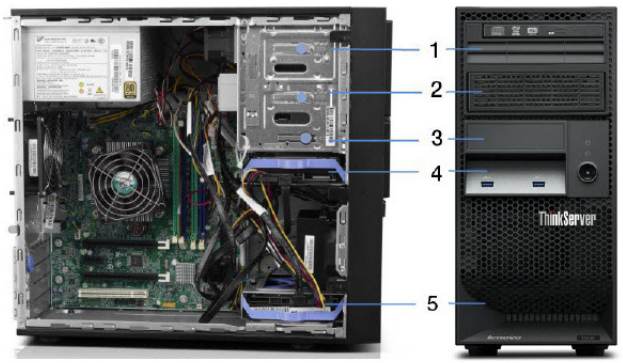
• ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports
	(detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A5) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A5000BUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	450W	No	No	1

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

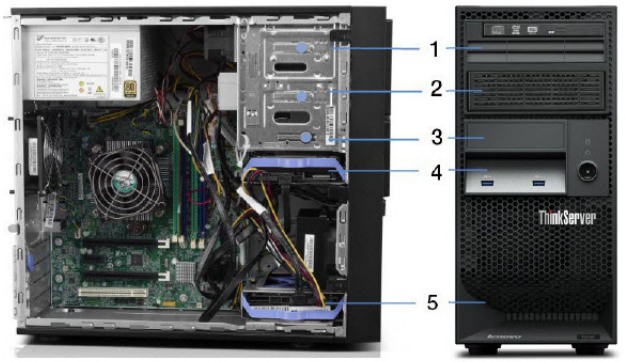
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports
	(detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A0) - September 2013

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage (Drive bays)	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A00003US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	1x350-T2	280W	No	Foundation	1
70A00006US	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	RAID 0	4x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	2xIntel CT	280W	No	Foundation	1
70A00009UX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000AUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000BUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000CUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	No	1x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000DUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Foundation	1

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

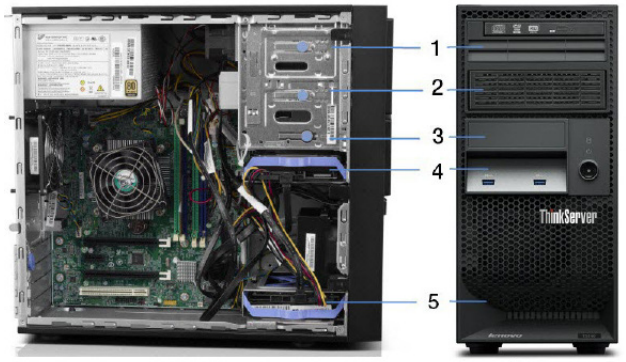
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A0) - September 2013 - II

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A0000EUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Essentials	1
70A0000FUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	RAID 1	2x500GB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Standard	1
70A0000GUX	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000HUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000JUX	Xeon E3-1275 v3 (4C/3.5GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	Open (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	No	1
70A0000KUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Foundation	1
70A0000LUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Essentials	1

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

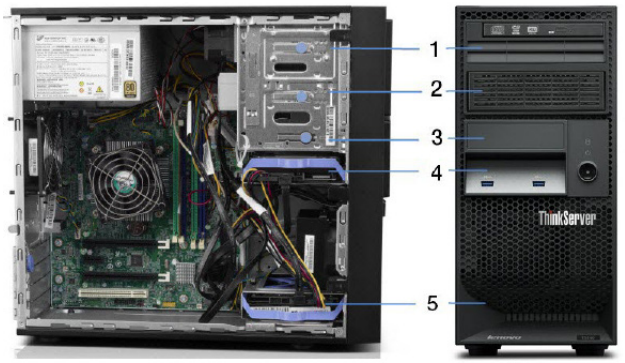
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports
	(detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A0) - September 2013 - III

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A0000MUS	Xeon E3-1225 v3 (4C/3.2GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	RAID 1	2x1TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	No	280W	No	Standard	1
70A0000NUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx1	Intel HD P4600	No	2x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1x350-T2	280W	No	No	3
70A0000PUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx2	Intel HD P4600	No	2x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1x350-T2	280W	No	No	3
70A0000QUX	Xeon E3-1245 v3 (4C/3.4GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	Intel HD P4600	No	2x2TB 3.5" SATA (4x3.5" Bay)	Slim DVD±RW	No	1x350-T2	280W	No	No	3

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

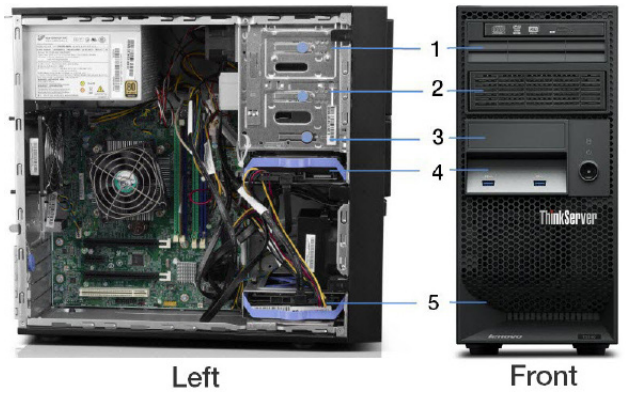
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports
	(detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS140 (70A1) - September 2013

Product Specifications Reference (PSREF)

Type-model*	Processor	Memory type	Memory DIMMs	Graphics	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Power Supply	Rack kit	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70A10000US	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	NVS 300	RAID 10	4x4TB 3.5 SATA (4x3.5" Bay)	Slim DVD±RW	1xParallel	2xIntel CT	450W	No	Foundation	1
70A10001US	Xeon E3-1280 v3 (4C/3.6GHz/8MB/1600MHz)	1600MHz ECC	8GBx4	Quadro 600	RAID 10	4x2TB 3.5 SATA (4x3.5" Bay)	Slim DVD±RW	No	1xIntel CT	450W	No	Foundation	1

** Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system.*

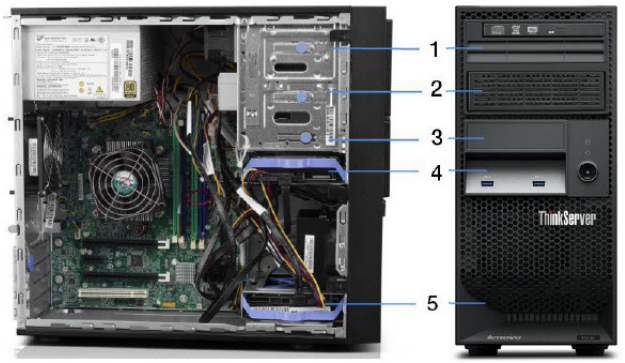
- ***For detailed ThinkServer TS140 platform specifications, please see ThinkServer TS140 Platform Specifications sheet***

Systems management	EasyStartup, EasyUpdate on all models; Intel Active Management Technology 9 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3 processors)
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Drive bays	Up to four 3.5" hard drive bays (see right)
Storage	3.5" SATA 6.0Gb/s hard drives, 7200 rpm
Optical	Supports DVD-ROM or DVD±RW, 1.6" high or slim, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85%, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92%, 80 PLUS Platinum qualified
Form factor/ Rack-mountable	Tower, rack-mountable to 4U via optional ThinkServer Tower to Rack Shelf Conversion Kit *(Option PN: 0C19515)*
Mechanical	• 25-liter, raven black color; metal case • (WxDxH) 6.89"x 16.97"x 14.76"/175mm x 431mm x 375mm • 28.66 lb (13kg) max configuration
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified/ • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS140 Platform Specifications* sheet

Drive bays



1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Note:
4x3.5" bays models: Bay 1, 2, 4, 5 are included in models
3x3.5" bays models: Bay 2, 4, 5 are included in models
2x3.5" bays models: Bay 4, 5 are included in models

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal)
- Power-on password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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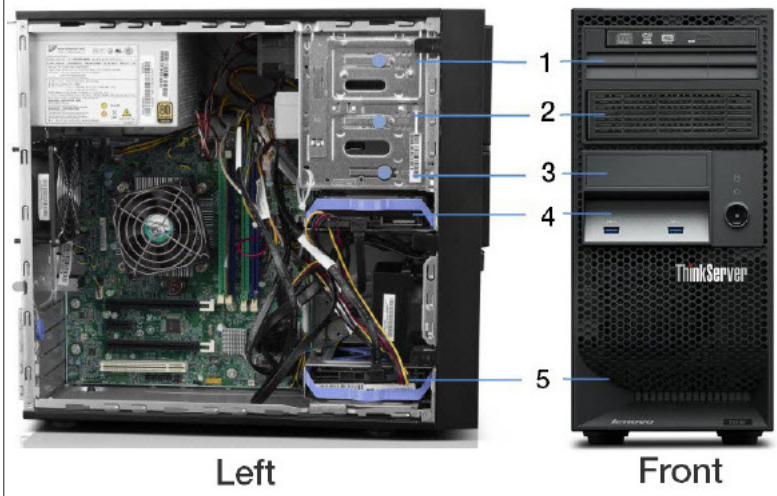
ThinkServer TS140 Platform Specifications - System Specifications (I of III)

<table>
<tr><th>Components</th><th>Specification</th></tr>
<tr><td>Form factor</td><td>Tower, rack-mountable to 4U via ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)</td></tr>
<tr><td>Chipset</td><td>Intel C226 Chipset</td></tr>
<tr><td>Systems management</td><td>• Intel Active Management Technology 9 on models with Xeon processor
(KVM function needs Intel Xeon E3-12x5 v3 processors)
• EasyStartup
• EasyUpdate</td></tr>
<tr><td>Processor</td><td>One LGA1150 socket,
supports one processor from Intel Xeon E3-1200 v3, Core-i3 4000, and Pentium G3000 families,
integrated 2-channel DDR3 memory controller, optional integrated processor graphics on selected processors.

The following processors are supported:
<table>
<tr><th>Processor Number</th><th># of Cores</th><th># of Threads</th><th>Clock Speed</th><th>Max Turbo Frequency</th><th>Cache</th><th>Memory speed</th><th>ECC Memory Supported</th><th>Processor Graphics</th></tr>
<tr><td>Xeon E3-1285 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4700</td></tr>
<tr><td>Xeon E3-1280 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1275 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Xeon E3-1270 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1245 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Xeon E3-1240 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1230 v3</td><td>4</td><td>8</td><td>3.3 GHz</td><td>3.7 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1225 v3</td><td>4</td><td>4</td><td>3.2 GHz</td><td>3.6 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Xeon E3-1220 v3</td><td>4</td><td>4</td><td>3.1 GHz</td><td>3.5 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Core i3-4340</td><td>2</td><td>4</td><td>3.6 GHz</td><td></td><td>4 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Core i3-4330</td><td>2</td><td>4</td><td>3.5 GHz</td><td></td><td>4 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4600</td></tr>
<tr><td>Core i3-4130</td><td>2</td><td>4</td><td>3.4 GHz</td><td></td><td>3 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics 4400</td></tr>
<tr><td>Pentium G3430</td><td>2</td><td>2</td><td>3.3 GHz</td><td></td><td>3 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics</td></tr>
<tr><td>Pentium G3420</td><td>2</td><td>2</td><td>3.2 GHz</td><td></td><td>3 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics</td></tr>
<tr><td>Pentium G3220</td><td>2</td><td>2</td><td>3 GHz</td><td></td><td>3 MB</td><td>DDR3-1333</td><td>Yes</td><td>Intel HD Graphics</td></tr>
</table>
Notes:
All information is provided by Intel and may be changed at any time without notice. The information herein is provided “as-is”.
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</td></tr>
<tr><td>Memory type</td><td>1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available</td></tr>
<tr><td>Memory DIMM sockets</td><td>Four 240-pin DIMM sockets</td></tr>
<tr><td>Memory capacity</td><td>Up to 32GB (8GBx4)</td></tr>
<tr><td>Memory protection</td><td>ECC</td></tr>
<tr><td>Additional memory disclaimers</td><td>● Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</td></tr>
<tr><td>Onboard SATA controller</td><td>Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s,
RAID 0, 1, 5, 10 support</td></tr>
<tr><td>Drive bays</td><td>Supports one 5.25" optical and two 3.5" disk drive bays in standard models, direct cable, no hot-swap
up to one slim optical and four 3.5"/2.5" disk drive bays (pending 2.5" disk drives availability):
 

1: Standard 5.25", 1.6" high optical or optional slim optical + 4th 3.5" drive bay
2: Optional 3rd 3.5" drive bay or optional 4th 2.5" drive bay
3: Optional 3rd 2.5" drive bay
4: Standard 3.5"/2.5" primary drive bay
5: Standard 3.5"/2.5" 2nd drive bay

Notes:
● Standard optical and hard drive bays are included in models;
optional optical and hard drive bays are available on models with the corresponding drives only
● Image above is for reference only. Model in this image contains optional slim optical + 3.5" 2nd hard drive bay with supplemental fan (Bay 1) and optional 3.5" 3rd hard drive bay (Bay 2)
● Optional slim optical + 3.5" drive bay (Bay 1) and optional 3rd 2.5" drive bay (Bay 3) can not be supported concurrently on one model.</td></tr>
</table>

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ThinkServer TS140 Platform Specifications (II of III)

Components	Specification
Optical	Supports DVD±RW or DVD ROM, 1.6" high or slim, SATA interface

Graphics	• Integrated Intel HD Graphics on Xeon E3-12x5 v3, Core i3, and Pentium processors, uses main memory, works along with discrete graphics to support multi-display, enables three display connectors (2 DisplayPort, 1 VGA) on rear ports (detailed information please see ***Rear ports*** section)
	• Also supports the following optional discrete graphics adapters:
	  • NVIDIA Quadro NVS 300, PCIe x16 adapter, 512MB
	  • NVIDIA Quadro 600, PCIe x16 adapter, 1GB

Front ports	Two USB 3.0 (blue)
Rear ports	One VGA and two DisplayPort for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Expansion Slots	Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 280 watts, autosensing, 85% PSU, 80 PLUS Bronze qualified • One fixed 450 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified
Security	• Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington Microsaver cable; prohibits side cover removal) • Power-on password • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Mechanical	• Raven black color; metal case • 6.89"W x 16.97"D x 14.76"H • 175mm W x 431mm D x 375mm H • 28.66 lb (13kg) max configuration • 25-liter
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal (standard bays) • Toolless adapter retention • Illuminated front icons
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant
EMC	FCC Class A
240VA	Supports
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing
Acoustic noise (idle/working mode)	See table below

Category	Min Configuration	Best Configuration
CPU	1 CPU	1 CPU
Optical Drive	0 DVD	1 DVD
Drive Bays	Up to one	Up to three
HDD	1x 500GB SATA	3x 500GB SATA
Memory	1x 2GB UDIMM	1x 2GB UDIMM
PSU	280W	450W
RAID	Embedded SATA	Embedded RAID
Add-on card	No	1xVGA
Sound Pressure (operating)	26 dB(A)	35 dB(A)
Sound Pressure (idle)	25 dB(A)	34 dB(A)

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ThinkServer TS140 Platform Specifications - System Specifications (III of III)

Components	Specification
Warranty	1 or 3-year limited warranty, parts and labor, more services information see S-TS1 and S-TS3 sheet
Preloaded operating systems	• Windows Server 2012 Foundation • Windows Server 2012 Essentials • Windows Server 2012 Standard
Supported operating systems and virtualization software	• Windows 7 • Windows 8 • Windows Server 2008 R2 Standard • Windows Server 2008 R2 Enterprise • Windows Small Business Server 2011 Essentials • Windows Small Business Server 2011 Standard • Windows Small Business Server 2011 Premium Add-On *Notes:* *1. Supported only, no preloaded models* *2. Windows 7 and Windows 8 are not supported by EasyStartup*

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ThinkServer TS140 Optional Configurations

Memory	
ThinkServer 2GB DDR3L-1600MHz (1RX8) ECC UDIMM	0C19498
ThinkServer 4GB DDR3L-1600MHz (1RX8) ECC UDIMM	0C19499
ThinkServer 8GB DDR3L-1600MHz (2RX8) ECC UDIMM	0C19500
Disk Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19501
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19502
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19503
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19504
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19505
Connectivity	
ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
ThinkServer CT2 1Gbps Single Port Base-T Ethernet Adapter by Intel	4XC0F28725
Parallel/Serial Port Adapter	
ThinkServer Single Parallel Port PCI Adapter	0C19508
ThinkServer Single Serial Port PCI Adapter	0C19509
ThinkServer Dual Serial Port PCI Adatper	0C19510
ThinkServer Dual Serial Port PCIe Adatper	0C19511
Graphics	
ThinkServer 1GB Quadro 600 Graphic Adapter by NVIDIA	0C19512
ThinkServer 512MB NVS 300 PCIe x16 Graphic Adapter by NVIDIA	0C19513
3.5" Hard Drive Conversion Kit	
ThinkServer 3.5" HDD to 5.25" Tray Convertor Kit	0C19514
ThinkServer 3.5" HDD to 5.25" Tray Convertor with Slim ODD Kit	0C19529
Tower to Rack Shelf Conversion Kit	
ThinkServer Tower to Rack Shelf Conversion Kit	0C19515

For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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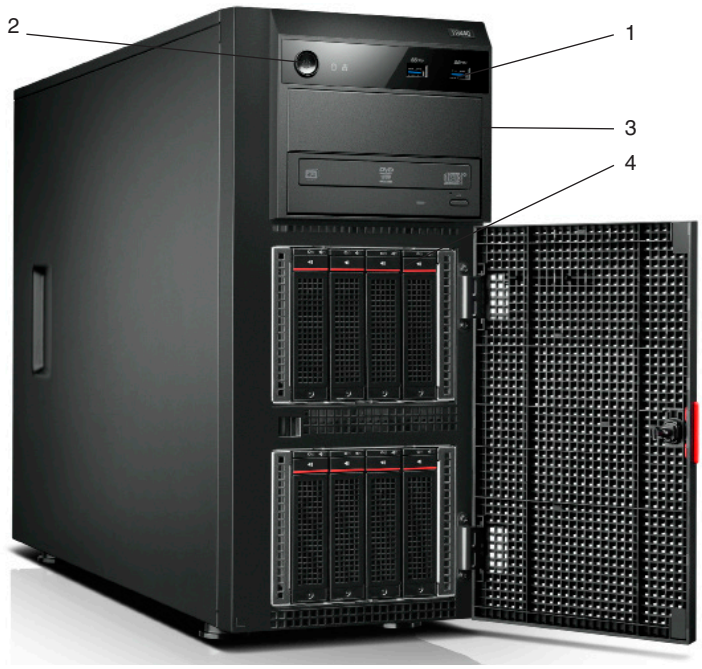
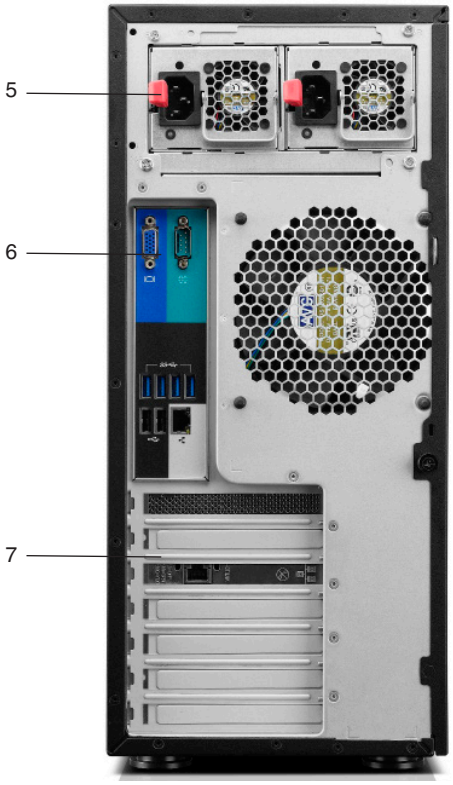
ThinkServer TS440 - Overview



Front view

1. Front I/O: 2 USB 3.0 (blue)
2. Power Button
3. Two 5.25" optical drive bays
   (up to one optical on models with onboard SATA controller)
4. Eight 3.5" hot-swap drive bays
   (Also supports:
   4 x 3.5" direct cable bays,
   or 4 x 3.5" hot-swap bays,
   or 8 x 2.5" hot-swap bays)



Rear view

5. Power Supply:
   Up to two redundant 450 watts 80 PLUS Gold or
   fixed one 450 watts 80 PLUS Platinum
6. Rear I/O: 2 USB 2.0
   4 USB 3.0(blue)
   1 serial (9-pin)
   1 RJ-45 (GbE)
   1 VGA (for Intel HD Graphics)
7. 1 PCIe 3.0 x16 (with optional RAID adapter)
   1 PCIe 2.0 x1
   1 PCIe 2.0 x16 (x4 elec, with optional ethernet adapter)
   1 PCI

Internal

- One LGA1150 socket, supports one processor from Intel Xeon E3-1200 v3 family
- 4 DIMM sockets, supports up to 32GB ECC UDIMM memory
- Up to eight hard drive bays

Mechanical

- Tower, business black color, metal case
- Rack-mountable to 5U
- W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration

ThinkServer TS440 (70AQ) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ0005US	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD±RW	No	No	Foundation	1x450W (hot-swap, redundant with 2)	3
70AQ0006US	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD±RW	No	No	Essentials	1x450W (hot-swap, redundant with 2)	3
70AQ0007US	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD±RW	No	No	Standard	1x450W (hot-swap, redundant with 2)	3
70AQ0009UX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	1
70AQ000AUX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000BUX	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000CUX	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

● ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AQ) - TopSeller (September 2013) - II

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AQ000DUX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000EUX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x2.5 HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000FUX	Xeon E3-1245 v3 (4C/3.4GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x2.5 HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000GUX	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000HUX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	8x3.5" HS	RAID 700 (discrete, 0/1/5/6/10/50/60)	No	Open	1xDVD±RW	No	No	No	1x450W (hot-swap, redundant with 2)	3
70AQ000NUX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD	No	No	No	1x450W (hot-swap, redundant with 2)	1
70AQ000PUX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 500 (discrete, 0/1/10)	No	Open	1xDVD	No	No	No	1x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

- ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AN) - TopSeller (September 2013)

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AN0001UX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	1
70AN0002UX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

- ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AM) - September 2013

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AM0000US	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	2GBx2	Intel HD P4600	4x3.5" DC	RAID 100 (onboard, 0/1/5/10)	RAID 1	2x500GB 3.5" SATA	1xDVD	No	1xIntel CT	Foundation	1x450W (hot-swap, redundant with 2)	1
70AM0001US	Xeon E3-1275 v3 (4C/3.5GHz/ 8MB/1600MHz)	1600MHz ECC	2GBx4	Intel HD P4600	8x3.5" HS	RAID 500+key (discrete, 0/1/5/10/50)	RAID 50	8x2TB 3.5" SATA	2xDVD±RW	No	1xIntel CT	Foundation	2x450W (hot-swap, redundant with 2)	1
70AM0002UX	Xeon E3-1280 v3 (4C/3.6GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx3	NVS 300	8x2.5 HS	RAID 700 (discrete, 0/1/5/6/10/50/60)	RAID 6	3x600GB 2.5" SAS	1xDVD	No	1x350-T4	No	1x450W (hot-swap, redundant with 2)	1
70AM0003US	Xeon E3-1285 v3 (4C/3.6GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx4	Intel HD P4700	8x2.5 HS	RAID 700 (discrete, 0/1/5/6/10/50/60)	RAID 60	8x900GB 2.5" SAS	1xDVD±RW	No	1x350-T2	Foundation	2x450W (hot-swap, redundant with 2)	1
70AM0004UX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	1x450W (hot-swap, redundant with 2)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

• ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 (70AL) - September 2013

Product Specifications Reference (PSREF)

Type-model[1]	Processor	Memory type	Memory DIMMs	Graphics	Disk Bays[2]	RAID controller	Pre-conf RAID	Storage	Optical	Add-on ports	Discrete ethernet	Windows Server 2012 Preloaded	Power Supply	Base on-site warranty (-year)
70AL0000US	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	8GBx3	NVS 300	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	RAID 5	3x3TB 3.5" SATA	1xDVD±RW	No	1x350-T2	Foundation	Fixed 450W (non-hot swap, no redundant)	1
70AL0002UX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	1x500GB 3.5" SATA	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	3
70AL0003UX	Xeon E3-1225 v3 (4C/3.2GHz/ 8MB/1600MHz)	1600MHz ECC	4GBx1	Intel HD P4600	4x3.5" HS	RAID 100 (onboard, 0/1/5/10)	No	Open	1xDVD	No	No	No	Fixed 450W (non-hot swap, no redundant)	3

1. Model in italics shows that this is a Global Model. "UX" model does not include preloaded operating system. 2. HS = Hot-swap, DC = Direct cable, non-hot swap

- ***For detailed ThinkServer TS440 platform specifications, please see ThinkServer TS440 Platform Specifications sheet***

Systems management	• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors) • EasyStartup • EasyUpdate
Chipset	**Intel C226 Chipset**
Processor	One **LGA1150** socket, integrated 2-channel DDR3 memory controller, optional integrated Intel HD Graphics on selected processors
Memory type	1600MHz UDIMM, DDR3, ECC, 2-channel capable
Memory DIMM sockets	Four 240-pin DIMM sockets, up to 32GB ECC UDIMM *(Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs)*
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Supports optional discrete NVIDIA NVS 300 adapter, PCIe x1, 512MB
Onboard SATA controller	Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s, RAID 0, 1, 5, 10 support
Discreted SATA/ SAS controller (optional)	Supports the following: • ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support; optional upgrade key for ThinkServer RAID 500 adapter, add RAID 5, 50 support • ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support; optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter *Notes:* *RAID 50 and 60 are supported on 8 hard drive bays models only*
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter (2xSerial PCIe)
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/Mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Base warranty	1 or 3-year parts and labor limited warranty[1]
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer TS440 Platform Specifications* sheet

Optical Bays

- Two 5.25" optical bays for all models

(Up to one optical on onboard SATA controller models)

Hard Drive Bays

- Four 3.5" hard drive bays, no hot-swap, direct cable (4x3.5" DC)
- Four 3.5" hot-swap hard drive bays (4x3.5" HS)
- Eight 3.5" hot-swap hard drive bays (8x3.5" HS)
- Eight 2.5" hot-swap hard drive bays (8x2.5" HS)

8 x 2.5" HS

4 x 3.5" HS

8 x 3.5" HS

Mechanical

- Tower, business black color, metal case
- W x Hx D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 61.7 lb (28kg) max configuration
- Rack-mountable to 5U (via optional Tower to Rack Shelf Conversion Kit, not included in standard model)
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU)
Slot 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec)
Slot 4: half-length, full-height, PCI 2.3

Security

- Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant
- Administrator password
- User password
- Front panel key lock
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

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ThinkServer TS440 Platform Specifications - I of III

<table>
<tr><th>Components</th><th>Specification</th></tr>
<tr><td>Form factor</td><td>Tower, rack-mountable to 5U via ThinkServer Tower to Rack Shelf Conversion Kit (Option PN: 0C19515)</td></tr>
<tr><td>Chipset</td><td>Intel C226 Chipset</td></tr>
<tr><td>Systems management</td><td>• Intel Active Management Technology 9 (KVM function needs Intel Xeon E3-12X5 v3 processors)
• EasyStartup
• EasyUpdate</td></tr>
<tr><td>Processor</td><td>One LGA1150 socket,
supports one processor from Intel Xeon E3-1200 v3 family,
integrated 2-channel DDR3 memory controller, optional integrated processor graphics on Xeon E5-12X5 v3 processors.

The following processors are supported:
<table>
<tr><th>Processor Number</th><th># of Cores</th><th># of Threads</th><th>Clock Speed</th><th>Max Turbo Frequency</th><th>Cache</th><th>Memory speed</th><th>ECC Memory Supported</th><th>Processor Graphics</th></tr>
<tr><td>Xeon E3-1285 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4700</td></tr>
<tr><td>Xeon E3-1280 v3</td><td>4</td><td>8</td><td>3.6 GHz</td><td>4 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1275 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4600</td></tr>
<tr><td>Xeon E3-1270 v3</td><td>4</td><td>8</td><td>3.5 GHz</td><td>3.9 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1245 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4600</td></tr>
<tr><td>Xeon E3-1240 v3</td><td>4</td><td>8</td><td>3.4 GHz</td><td>3.8 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1230 v3</td><td>4</td><td>8</td><td>3.3 GHz</td><td>3.7 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
<tr><td>Xeon E3-1225 v3</td><td>4</td><td>4</td><td>3.2 GHz</td><td>3.6 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td>Intel HD Graphics P4600</td></tr>
<tr><td>Xeon E3-1220 v3</td><td>4</td><td>4</td><td>3.1 GHz</td><td>3.5 GHz</td><td>8 MB</td><td>DDR3-1600</td><td>Yes</td><td></td></tr>
</table>
Notes:
All information is provided by Intel and may be changed at any time without notice. The information herein is provided “as-is”.
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</td></tr>
<tr><td>Memory type</td><td>1600MHz UDIMM, DDR3, ECC, 2-channel capable; 2GB, 4GB, and 8GB ECC UDIMMs are available</td></tr>
<tr><td>Memory DIMM sockets</td><td>Four 240-pin DIMM sockets</td></tr>
<tr><td>Memory capacity</td><td>Up to 32GB (8GBx4)</td></tr>
<tr><td>Memory protection</td><td>ECC</td></tr>
<tr><td>Additional memory disclaimers</td><td>● Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</td></tr>
<tr><td>Onboard SATA controller</td><td>Onboard ThinkServer RAID 100 SATA controller in chipset, SATA 6.0Gb/s,
RAID 0, 1, 5, 10 support</td></tr>
<tr><td>Discreted SATA/SAS controller (optional)</td><td>Supports the following:
• ThinkServer RAID 500 adapter (LSI SAS 9240-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 10 support;
optional upgrade key for ThinkServer RAID 500 adapter,
add RAID 5, 50 support
• ThinkServer RAID 700 adapter (LSI SAS 9260-8i), PCI Express bus, SATA 6.0Gb/s, SAS 6.0Gb/s,
RAID 0, 1, 5, 6, 10, 50, 60 support;
optional Intelligent Battery Backup Unit (iBBU08) for ThinkServer RAID 700 adapter

Notes:
RAID 50 and 60 are supported on 8 hard drive bays models only</td></tr>
<tr><td>Drive bays</td><td>Supports two 5.25" optical bays, up to two optical drives (up to one optical on models with onboard SATA controller);
supports up to eight hard drive bays, one of the following are supported:
• 4 x 3.5" DC: Four 3.5" hard drive bays, no hot-swap, direct cable (onboard RAID 100 controller, SATA only)
• 4 x 3.5" HS: Four 3.5" hot-swap hard drive bays (onboard RAID 100 controller for SATA, discrete RAID adapter for SATA/SAS)
• 8 x 3.5" HS: Eight 3.5" hot-swap hard drive bays (needs discrted RAID adapter, supports SATA/SAS)
• 8 x 2.5" HS: Eight 2.5" hot-swap hard drive bays (needs discrted RAID adapter, supports SATA/SAS)

8 x 2.5" hot-swap 4 x 3.5" hot-swap 8 x 3.5" hot-swap

Notes:
Hard drive bays are behind front cover</td></tr>
</table>

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ThinkServer TS440 Platform Specifications - II of III

Components	Specification
Optical	Supports DVD±RW or DVD ROM, 1.6" high, SATA interface
Graphics	• Integrated Intel HD Graphics on Xeon E3-12X5 v3 processors, uses main memory, works along with discrete graphics to support multi-display, enables VGA connector on rear (detailed information please see ***Rear ports*** section) • Also supports the following optional discrete graphics adapters: • NVIDIA NVS 300, PCIe x1 adapter, 512MB
Front ports	Two USB 3.0 (blue)
Rear ports	One VGA for models with Intel HD Graphics, two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45)
Add-on ports (optional)	Supports the following: • Single Parallel Port PCI Adapter (1xParallel) • Single Serial Port PCI Adapter (1xSerial) • Dual Serial Ports PCI Adapter (2xSerial PCI) • Dual Serial Ports PCIe Adapter(2xSerial PCIe)
Expansion Slots	Slot 1: half-length, full-height, PCIe 3.0 x16 (near CPU) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, PCIe 2.0 x16 (x4 elec) Slot 4: half-length, full-height, PCI 2.3
Onboard Ethernet	One onboard gigabit ethernet, Intel I217
Discrete Ethernet (optional)	Supports the following: • Intel Gigabit CT Desktop Adapter (1xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T2 (2xGbE, RJ-45) • Intel Ethernet Server Adapter I350-T4 (4xGbE, RJ-45)
Keyboard/mouse	None (use USB port)
Power supply	Supports one of the follwing, depending on models: • One fixed 450 watts, universal, 80 PLUS® Platinum qualified • Up to two redundant 450 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security	• Security chip: ST33ZP24AR28PVSP for TPM function, TCG 1.2-compliant • Administrator password • User password • Front panel key lock • Boot sequence control • Boot without keyboard, mouse, diskette • Serial port I/O control • USB port disablement (front or all)
Mechanical	• Tower, business black color, metal case • W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm • 61.7 lb (28kg) max configuration • Rack-mountable to 5U
Serviceability	• Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons
Environmental certifications	• GREENGUARD® certified • Energy Star Server 1.1 qualified • RoHS-compliant
EMC	FCC Class A
240VA	Supports
Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing
Acoustic noise (idle/working mode)	See table below

Category	Mainstream Configuration	Full Configuration
CPU	Xeon	Xeon
Optical Drive	DVD-ROM	DVD-ROM
HDD Controller	onboard SATA	SAS Controller
HDD Bays	4 x 3.5“ SATA (direct cable)	8 x 3.5“ SAS (hot-swap)
HDD	4x 1TB SATA	8x 600GB SAS
Memory	1 x 2GB UDIMM ECC	4 x 4GB UDIMM ECC
PSU	Fixed	Redundant
Management	Basic IPMI mgmt, reporting	Basic IPMI mgmt, reporting
RAID	SATA RAID 0/1	SAS RAID 5
Sound Pressure (operating)	40.5 dB(A)	42.0 dB(A)
Sound Pressure (idle)	32.0 dB(A)	38.0 dB(A)

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ThinkServer TS440 Platform Specifications - III of III

Components	Specification
Warranty	1 or 3-year limited warranty, parts and labor, more services information see S-TS1 and S-TS3 sheet
Preloaded operating systems	• Windows Server 2012 Foundation • Windows Server 2012 Essentials • Windows Server 2012 Standard
Supported operating systems and virtualization software	• Windows Server 2008 R2 Standard • Windows Server 2008 R2 Enterprise • Windows Server 2012 Datacenter • Windows Small Business Server 2011 Essentials • Windows Small Business Server 2011 Standard • Windows Small Business Server 2011 Premium Add-On • Red Hat Enterprise Linux 6.4 • VMware ESXi 5.1 U1 (Discrete RAID controller, add-on ethernet controller, and Intel Xeon E3-12x5 v3 processors are needed) *Notes:* *1. Supported only, no preloaded models* *2. For latest VMware compatibility list for ThinkServer, please see http://www.vmware.com/resources/compatibility/search.php* *3. For latest Red Hat compatibility list for ThinkServer, please see https://hardware.redhat.com/* *4. These supported operating systems are also supported by EasyStartup*

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ThinkServer TS440 Optional Configurations

Memory	
ThinkServer 2GB DDR3L-1600MHz (1RX8) ECC UDIMM	0C19498
ThinkServer 4GB DDR3L-1600MHz (1RX8) ECC UDIMM	0C19499
ThinkServer 8GB DDR3L-1600MHz (2RX8) ECC UDIMM	0C19500
Disk Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19501
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19502
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19503
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19504
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive	0C19505
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
Connectivity	
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
Connectivity	
ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
Parallel/Serial Port Adapter	
ThinkServer Single Parallel Port PCI Adapter	0C19508
ThinkServer Single Serial Port PCI Adapter	0C19509
ThinkServer Dual Serial Port PCI Adatper	0C19510
ThinkServer Dual Serial Port PCIe Adatper	0C19511
Graphics	
ThinkServer 512MB NVS 300 PCIe x1 Graphic Adapter by NVIDIA	0C19528
3.5" Hard Drive Conversion Kit	
ThinkServer 3.5" HDD to 5.25" Tray Convertor Kit	0C19514
ThinkServer 3.5" HDD to 5.25" Tray Convertor with Slim ODD Kit	0C19529
Tower to Rack Shelf Conversion Kit	
ThinkServer Tower to Rack Shelf Conversion Kit	0C19515
Redundant Power Supply	
ThinkServer 450W Gold Hot Swap Redundant Power Supply	67Y2625

For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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ThinkServer TD350 TopSeller Model(s) - 70DG (September 2014) - I

Type-model	Processor	Memory	RAID controller	Disk bays	Disk drives	Discrete ethernet	SD module	Optical	TPM	System mgmt	Power	Preloaded OS	Warranty (-year, on-site)
70DG0003UX	2xE5-2620 v3 6C/2.4GHz/15MB/85W/1866MHz	4x8GB 2133MHz RDIMM	110i+key	5x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	750Wx1 Platinum	No	3
70DG0007UX	1xE5-2603 v3 6C/1.6GHz/15MB/85W/1600MHz	1x8GB 2133MHz RDIMM	110i+key	5x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	550Wx1	No	3
70DG0008UX	1xE5-2609 v3 6C/1.9GHz/15MB/85W/1600MHz	1x8GB 2133MHz RDIMM	110i+key	5x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	550Wx1	No	3
70DG0009UX	1xE5-2620 v3 6C/2.4GHz/15MB/85W/1866MHz	1x8GB 2133MHz RDIMM	720ix+1GB RAM	15x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	750Wx1 Platinum	No	3
70DG000AUX	1xE5-2640 v3 8C/2.6GHz/20MB/90W/1866MHz	1x8GB 2133MHz RDIMM	720ix+1GB RAM	15x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	750Wx1 Platinum	No	3

Components	Specification
Mechanical	• Tower or 4U rack • Minimum configuration: 22 kg (48.5 lb), maximum: 41.4 kg (91.27 lb)
Dimensions (tower)	Height: 459 mm (18.1 in), width: 251 mm (9.9 in), depth: 686 mm (27 in)
Dimensions (rack)	Height: 173 mm (6.8 in), width: 482 mm (19 in), depth: 686 mm (27 in)
Chipset	Intel C612 Platform Controller Hub (PCH)
Processor	Up to two **Intel Xeon E5-2600 v3** family processors with 16 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.3GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 40MB cache.
Memory DIMMs	16 DIMM sockets (8 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0, 1, 10 with RAID 110i**, 6Gb/s SATA, optional key for RAID 5. **RAID 0, 1, 10 with RAID 510i**, 6Gb/s SAS/SATA, optional key for RAID 5, 50. **RAID 0, 1, 10, 5, 50, 6, 60 with RAID 720i or 720ix**, 12Gb/s SAS/SATA, optional 1GB memory or 1GB/2GB/4GB flash with super capacitor **RAID 0, 1, 10, 5, 50, 6, 60 with LSI 9286CV-8e**, 6Gb/s SAS/SATA, 1GB memory, CacheVault flash cache with super capacitor, optional CacheCade Pro or FastPath upgrade key
Disk drive bays	3.5" bay up to 15, or 2.5" bay up to 16, hot-swap. Or 5 3.5" easy swap bays (non-hot swap)
Optical drive	Two 5.25" bays for optical and tape drives. DVD-ROM or DVDRW
Tape drive bays	Up to one LTO-6 internal SAS tape drive
Network interfaces	One dedicate management port, two gigabit ethernet ports. Supports optional discrete network adapters via PCIe slots
Ports	Front: Two USB 2.0. Rear: One VGA, four USB 3.0, one RJ-45 (dedicate/share mgmt), two ethernet (RJ-45), one serial (9-pin)
Cooling	4 (3+1), hot-swap
Power supply	Up to two redundant hot-swap 450W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified
Graphics	Onboard Aspeed AST2400 with 16MB memory, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Hot-swap parts	Disk drives (hot-swap models), power supplies, and fans
Systems management	UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer Diagnostics, ThinkServer Deployment Manager, ThinkServer Energy Manager, ThinkServer System Manager CLI, Lenovo ThinkServer Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, ThinkServer Power Planner. Optional ThinkServer System Manager (TSM) Premium for for remote presence (graphics, keyboard and mouse, and virtual media)
Security features	Power-on and administrator password, optional Trusted Platform Module (TCG 1.2-compliant)

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Declared noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Limited warranty	1-year or 3-year limited onsite service. For more information and services upgrade options, please see: *http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html*

Supports up to 7 PCIe 3.0 x16 slots:
Slot 1: PCIe 3.0 x16; full height, full length, by CPU 1, double-wide
Slot 2: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 1
Slot 3: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 1
Slot 4: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 2
Slot 5: PCIe 3.0 x16; full height, full length, by CPU 2
Slot 6: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 2
Slot 7: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 2

TD350 Environment Specification

Temperature - operating	50 °F to 113 °F (10 °C to 45 °C)
Temperature - storage (no package)	-10 °C to 60 °C
Temperature - storage (with package)	-40 °C to 60 °C
Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
Humidity - operating	20%~80%, non-condensing
Humidity - storage (with package)	8%~90%, non-condensing

Note:
45 °C continuous operation only supports on 3.5" ES models with max 120W CPU/no tape/redundant PSU required/ No HBA or RAID cards, or 2.5" HS models with max 8 HDD/max 120W CPU/no tape/redundant PSU required/ No HBA or RAID cards.

Core Options for ThinkServer TD350 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4) LRDIMM
4XB0G45715 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45719 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45737 ThinkServer 2.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0G45743 ThinkServer 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0F28696 ThinkServer RAID 720i 1GB Modular Flash and Supercapacitor Upgrade
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4XF0G45870 ThinkServer TD350 4-Post Static Rack Kit

For a list of all supported options, please see: http://www.lenovoquickpick.com/usa/home/thinkserver/rack-and-tower-server

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ThinkServer TD350 TopSeller Model(s) - 70DG (September 2014) - II

Type-model	Processor	Memory	RAID controller	Disk bays	Disk drives	Discrete ethernet	SD module	Optical	TPM	System mgmt	Power	Preloaded OS	Warranty (-year, on-site)
70DG000BUX	1xE5-2650 v3 10C/2.3GHz/25MB/105W/2133MHz	1x8GB 2133MHz RDIMM	720ix+1GB RAM	15x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	750Wx1 Platinum	No	3
70DG000CUX	1xE5-2670 v3 12C/2.3GHz/30MB/120W/2133MHz	1x8GB 2133MHz RDIMM	720ix+1GB RAM	15x3.5" HS	Open	Opt	Opt	DVDRW	TPM	Opt	750Wx1 Platinum	No	3

Components	Specification
Mechanical	• Tower or 4U rack • Minimum configuration: 22 kg (48.5 lb), maximum: 41.4 kg (91.27 lb)
Dimensions (tower)	Height: 459 mm (18.1 in), width: 251 mm (9.9 in), depth: 686 mm (27 in)
Dimensions (rack)	Height: 173 mm (6.8 in), width: 482 mm (19 in), depth: 686 mm (27 in)
Chipset	Intel C612 Platform Controller Hub (PCH)
Processor	Up to two **Intel Xeon E5-2600 v3** family processors with 16 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.3GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 40MB cache.
Memory DIMMs	16 DIMM sockets (8 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0, 1, 10 with RAID 110i**, 6Gb/s SATA, optional key for RAID 5. **RAID 0, 1, 10 with RAID 510i**, 6Gb/s SAS/SATA, optional key for RAID 5, 50. **RAID 0, 1, 10, 5, 50, 6, 60 with RAID 720i or 720ix**, 12Gb/s SAS/SATA, optional 1GB memory or 1GB/2GB/4GB flash with super capacitor **RAID 0, 1, 10, 5, 50, 6, 60 with LSI 9286CV-8e**, 6Gb/s SAS/SATA, 1GB memory, CacheVault flash cache with super capacitor, optional CacheCade Pro or FastPath upgrade key
Disk drive bays	3.5" bay up to 15, or 2.5" bay up to 16, hot-swap. Or 5 3.5" easy swap bays (non-hot swap)
Optical drive	Two 5.25" bays for optical and tape drives. DVD-ROM or DVDRW
Tape drive bays	Up to one LTO-6 internal SAS tape drive
Network interfaces	One dedicate management port, two gigabit ethernet ports. Supports optional discrete network adapters via PCIe slots
Ports	Front: Two USB 2.0. Rear: One VGA, four USB 3.0, one RJ-45 (dedicate/share mgmt), two ethernet (RJ-45), one serial (9-pin)
Cooling	4 (3+1), hot-swap
Power supply	Up to two redundant hot-swap 450W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified
Graphics	Onboard Aspeed AST2400 with 16MB memory, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Hot-swap parts	Disk drives (hot-swap models), power supplies, and fans
Systems management	UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer Diagnostics, ThinkServer Deployment Manager, ThinkServer Energy Manager, ThinkServer System Manager CLI, Lenovo ThinkServer Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, ThinkServer Power Planner. Optional ThinkServer System Manager (TSM) Premium for for remote presence (graphics, keyboard and mouse, and virtual media)
Security features	Power-on and administrator password, optional Trusted Platform Module (TCG 1.2-compliant)

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Declared noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Limited warranty	1-year or 3-year limited onsite service. For more information and services upgrade options, please see: *http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html*

Supports up to 7 PCIe 3.0 x16 slots:
Slot 1: PCIe 3.0 x16; full height, full length, by CPU 1, double-wide
Slot 2: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 1
Slot 3: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 1
Slot 4: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 2
Slot 5: PCIe 3.0 x16; full height, full length, by CPU 2
Slot 6: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 2
Slot 7: PCIe 3.0 x16 (x8 elec); full height, full length, by CPU 2

TD350 Environment Specification

Temperature - operating	50 °F to 113 °F (10 °C to 45 °C)
Temperature - storage (no package)	-10 °C to 60 °C
Temperature - storage (with package)	-40 °C to 60 °C
Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
Humidity - operating	20%~80%, non-condensing
Humidity - storage (with package)	8%~90%, non-condensing

Note:
45 °C continuous operation only supports on 3.5" ES models with max 120W CPU/no tape/redundant PSU required/ No HBA or RAID cards, or 2.5" HS models with max 8 HDD/max 120W CPU/no tape/redundant PSU required/ No HBA or RAID cards.

Core Options for ThinkServer TD350 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4) LRDIMM
4XB0G45715 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45719 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45737 ThinkServer 2.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0G45743 ThinkServer 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0F28696 ThinkServer RAID 720i 1GB Modular Flash and Supercapacitor Upgrade
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4XF0G45870 ThinkServer TD350 4-Post Static Rack Kit

For a list of all supported options, please see: http://www.lenovoquickpick.com/usa/home/thinkserver/rack-and-tower-server

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ThinkServer TD350 Relationship Model(s)

Type-model	Processor	Memory	RAID controller	Disk bays	Disk drives	Discrete ethernet	SD module	Optical	TPM	System mgmt	Power	Preloaded OS	Warranty (-year, on-site)
Announced September 2014													
70DH0000UX	2xE5-2620 v3 6C/2.4GHz/15MB/85W/1866MHz	4x8GB 2133MHz RDIMM	720ix+1GB RAM	15x3.5" HS	5x1TB 3.5" SATA HS +2x120GB M.2	Opt	Opt	DVDRW	TPM	TSM	750Wx2 Platinum	No	3
70DM0001UX	2xE5-2650 v3 10C/2.3GHz/25MB/105W/2133MHz	8x8GB 2133MHz RDIMM	720ix+2GB Flash	15x3.5"HS Rack	2x120GB SATA SSD HS +8x2TB 3.5" SATA HS +2x120GB M.2	GbEx4 RJ45	Opt	DVDRW	TPM	TSM	750Wx2 Platinum	No	3

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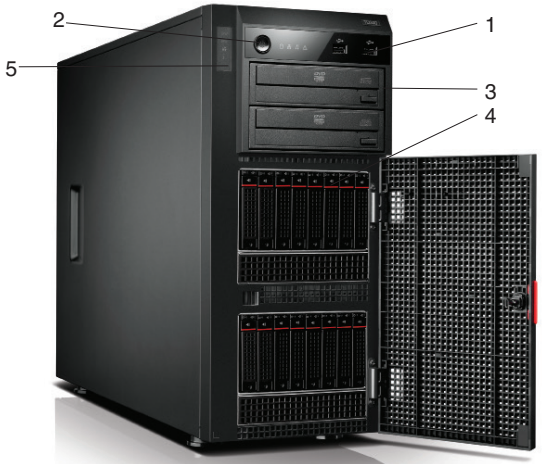
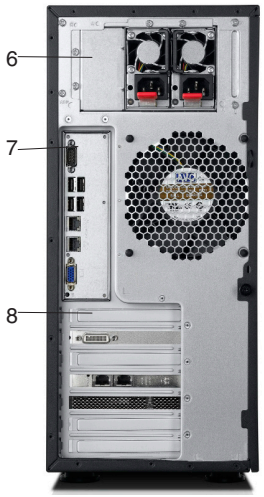
ThinkServer TD340 Overview



Front view

1. Front I/O: 2 USB 2.0
2. Power Button
3. Two 5.25" optical drive bays
4. 16 x 2.5" hot-swap drive bays
   (on selected models,
   also supports one of the following:
   4 x 3.5" direct cable bays,
   or 4 x 3.5" hot-swap bays,
   or 8 x 3.5" hot-swap bays,
   or 8 x 2.5" hot-swap bays)
5. Intelligent Diagnostics Module (optional)



Rear view

6. Hot-swap power supplies, 800W, 80 PLUS Gold
   (on selected models, also supports one fixed
   power supply, 625W, 80 PLUS Bronze)
7. Rear I/O: 4 USB 2.0
   1 Serial (9-pin)
   2 RJ-45 (one for dedicate/share
   management)
   1 VGA
8. Expansion slots*:
   1 PCIe 3.0 x8 (*near rear I/O, 2nd CPU is needed*)
   1 PCIe 3.0 x16
   1 PCIe 3.0 x8 (*2nd CPU is needed*)
   1 PCIe 3.0 x8 (*2nd CPU is needed*)
   1 PCIe 3.0 x8 (*x4 elec*)
   1 PCI
   * *Add-on ethernet adapter, RAID adapter,
   and graphics adapter are optional*

Internal

- Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 v2 and E5-2400 families
- 12 DIMM sockets, supports up to 192GB ECC LV RDIMM or 48GB ECC LV UDIMM memory
- Up to 16 x 2.5" hard drive bays

Mechanical

- Tower, business black color, metal case
- Rack-mountable to 5U
- W x H (without foot) x D = 7.68"/195mm x 16.9"/430mm x 23.4"/595mm
- 57.32 lb (26kg) max configuration

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ThinkServer TD340 TopSeller Models - 70B7 - I (January 2014)

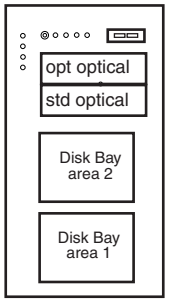
Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module Premium (Premium)	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
70B7002GUX	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	No	No	No	No	TPM	No	1x800W Redundant	1
70B7002HUX	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	No	No	No	No	TPM	No	1x800W Redundant	1
70B7002JUX	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002KUX	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002LUX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002MUX	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002NUX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3

- ***For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets***
- ***For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets***
- ***For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets***

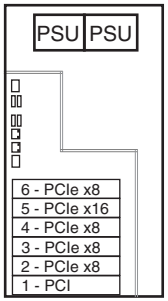
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory capacity	Up to **192GB** DDR3 LV RDIMM (16GB x 12), or up to **48GB** DDR3 LV UDIMM (4GB x 12)
Memory protection	ECC, memory mirroring, memory sparing
RAID support	Supports one of the following, depending on models: RAID 100: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 300: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 500: RAID 0, 1, 10 standard, optional upgrade key for RAID 5, 50 RAID 700: RAID 0, 1, 10, 5, 50, 6, 60 standard, 512MB cache, optional intelligent Battery Backup Unit RAID 710: RAID 0, 1, 10, 5, 50, 6, 60 standard, 1GB cache, optional CacheVault flash cache with super capacitor/CacheCade Pro 2.0/FastPath key **RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only*
Optical drive (optional)	Supports two half-height 5.25" optical bays, up to two optical drives
Onboard network	Two Gigabit Ethernet port via two Intel 82574L, either port can work as dedicate/share management (via BIOS setting)
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module Premium** for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models

Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant

Front



Rear***



*** Some models: one 625W fixed power supply

Mechanical

- Tower, rack-mountable to 5U via optional conversion kit *(Conversion kit is not included in model)*
- 7.68" W x 23.4" D x 16.9" H *(without foot)*
- 195mm W x 595mm D x 430mm H *(without foot)*
- 57.3 lb (26kg) max configuration

Disk bay Configurations

Supports one of the following, depending on models:
- 4 x 3.5" non-hot swap SATA disk bays *(uses Disk bay area 1)*
- 4 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 8 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*
- 8 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 16 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*

Expansion Slots

Up to six expansion slots**:
Slot 1: half-length, full-height, 32-bit PCI 2.3
Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*)
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: half-length, full-height, PCIe 3.0 x8
Slot 5: half-length, full-height, PCIe 3.0 x16
Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)

*** Single processor models: Slot 1, 2, 5 are functional*
Dual processor models: All six slot are functional

Ports

Front ports: Two USB 2.0
Rear ports: Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector
Internal USB: One internal USB port (Type A)

See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer TD340 TopSeller Models - 70B7 - II (January 2014)

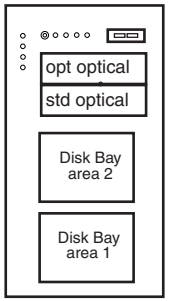
Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module Premium (Premium)	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
70B7002PUX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002QUX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002RUX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002SUX	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002TUX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002UUX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002VUX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3

- ***For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets***
- ***For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets***
- ***For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets***

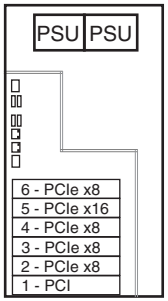
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory capacity	Up to **192GB** DDR3 LV RDIMM (16GB x 12), or up to **48GB** DDR3 LV UDIMM (4GB x 12)
Memory protection	ECC, memory mirroring, memory sparing
RAID support	Supports one of the following, depending on models: RAID 100: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 300: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 500: RAID 0, 1, 10 standard, optional upgrade key for RAID 5, 50 RAID 700: RAID 0, 1, 10, 5, 50, 6, 60 standard, 512MB cache, optional intelligent Battery Backup Unit RAID 710: RAID 0, 1, 10, 5, 50, 6, 60 standard, 1GB cache, optional CacheVault flash cache with super capacitor/CacheCade Pro 2.0/FastPath key **RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only*
Optical drive (optional)	Supports two half-height 5.25" optical bays, up to two optical drives
Onboard network	Two Gigabit Ethernet port via two Intel 82574L, either port can work as dedicate/share management (via BIOS setting)
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module Premium** for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models

Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant

Front



Rear***



*** Some models: one 625W fixed power supply

Mechanical

- Tower, rack-mountable to 5U via optional conversion kit *(Conversion kit is not included in model)*
- 7.68" W x 23.4" D x 16.9" H *(without foot)*
- 195mm W x 595mm D x 430mm H *(without foot)*
- 57.3 lb (26kg) max configuration

Disk bay Configurations

Supports one of the following, depending on models:
- 4 x 3.5" non-hot swap SATA disk bays *(uses Disk bay area 1)*
- 4 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 8 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*
- 8 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 16 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*

Expansion Slots

Up to six expansion slots**:
Slot 1: half-length, full-height, 32-bit PCI 2.3
Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*)
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: half-length, full-height, PCIe 3.0 x8
Slot 5: half-length, full-height, PCIe 3.0 x16
Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)

*** Single processor models: Slot 1, 2, 5 are functional*
Dual processor models: All six slot are functional

Ports

Front ports:	Two USB 2.0
Rear ports:	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector
Internal USB:	One internal USB port (Type A)

See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer TD340 TopSeller Models - 70B7 - III (January 2014)

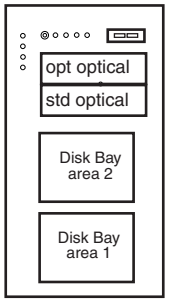
Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module Premium (Premium)	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
70B7002WUX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002XUX	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B7002YUX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B70030UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B70031UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8x2.5" HS (SATA/SAS)	RAID300	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B70032UX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	16x2.5" HS (SATA/SAS)	RAID700	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B70033UX	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	16x2.5" HS (SATA/SAS)	RAID700	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3

- ***For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets***
- ***For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets***
- ***For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets***

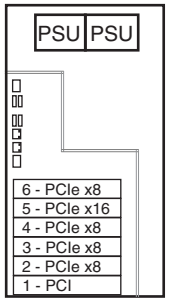
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory capacity	Up to **192GB** DDR3 LV RDIMM (16GB x 12), or up to **48GB** DDR3 LV UDIMM (4GB x 12)
Memory protection	ECC, memory mirroring, memory sparing
RAID support	Supports one of the following, depending on models: RAID 100: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 300: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 500: RAID 0, 1, 10 standard, optional upgrade key for RAID 5, 50 RAID 700: RAID 0, 1, 10, 5, 50, 6, 60 standard, 512MB cache, optional intelligent Battery Backup Unit RAID 710: RAID 0, 1, 10, 5, 50, 6, 60 standard, 1GB cache, optional CacheVault flash cache with super capacitor/CacheCade Pro 2.0/FastPath key **RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only*
Optical drive (optional)	Supports two half-height 5.25" optical bays, up to two optical drives
Onboard network	Two Gigabit Ethernet port via two Intel 82574L, either port can work as dedicate/share management (via BIOS setting)
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module Premium** for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models

Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant

Front



Rear***



*** Some models: one 625W fixed power supply

Mechanical

- Tower, rack-mountable to 5U via optional conversion kit *(Conversion kit is not included in model)*
- 7.68" W x 23.4" D x 16.9" H *(without foot)*
- 195mm W x 595mm D x 430mm H *(without foot)*
- 57.3 lb (26kg) max configuration

Disk bay Configurations

Supports one of the following, depending on models:
- 4 x 3.5" non-hot swap SATA disk bays *(uses Disk bay area 1)*
- 4 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 8 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*
- 8 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 16 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*

Expansion Slots

Up to six expansion slots**:
Slot 1: half-length, full-height, 32-bit PCI 2.3
Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*)
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: half-length, full-height, PCIe 3.0 x8
Slot 5: half-length, full-height, PCIe 3.0 x16
Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)

*** Single processor models: Slot 1, 2, 5 are functional*
Dual processor models: All six slot are functional

Ports

Front ports: Two USB 2.0
Rear ports: Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector
Internal USB: One internal USB port (Type A)

See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer TD340 TopSeller Models - 70B7 - IV (January 2014)

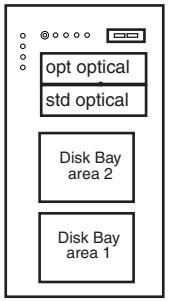
Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module Premium (Premium)	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
70B70034UX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	16x2.5" HS (SATA/SAS)	RAID700	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B70035UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	16x2.5" HS (SATA/SAS)	RAID710	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3
70B70036UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	16x2.5" HS (SATA/SAS)	RAID710	Open	DVD±RW	No	IDM	No	No	No	TPM	No	1x800W Redundant	3

- ***For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets***
- ***For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets***
- ***For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets***

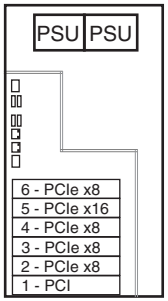
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory capacity	Up to **192GB** DDR3 LV RDIMM (16GB x 12), or up to **48GB** DDR3 LV UDIMM (4GB x 12)
Memory protection	ECC, memory mirroring, memory sparing
RAID support	Supports one of the following, depending on models: RAID 100: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 300: RAID 0, 1, 10 standard, optional upgrade key for RAID 5 RAID 500: RAID 0, 1, 10 standard, optional upgrade key for RAID 5, 50 RAID 700: RAID 0, 1, 10, 5, 50, 6, 60 standard, 512MB cache, optional intelligent Battery Backup Unit RAID 710: RAID 0, 1, 10, 5, 50, 6, 60 standard, 1GB cache, optional CacheVault flash cache with super capacitor/CacheCade Pro 2.0/FastPath key ** RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only*
Optical drive (optional)	Supports two half-height 5.25" optical bays, up to two optical drives
Onboard network	Two Gigabit Ethernet port via two Intel 82574L, either port can work as dedicate/share management (via BIOS setting)
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module Premium** for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models

Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant

Front



Rear***



*** Some models: one 625W fixed power supply

Mechanical

- Tower, rack-mountable to 5U via optional conversion kit *(Conversion kit is not included in model)*
- 7.68" W x 23.4" D x 16.9" H *(without foot)*
- 195mm W x 595mm D x 430mm H *(without foot)*
- 57.3 lb (26kg) max configuration

Disk bay Configurations

Supports one of the following, depending on models:

- 4 x 3.5" non-hot swap SATA disk bays *(uses Disk bay area 1)*
- 4 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 8 x 3.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*
- 8 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1)*
- 16 x 2.5" hot-swap SATA/SAS disk bays *(uses Disk bay area 1 and 2)*

Expansion Slots

Up to six expansion slots**:
Slot 1: half-length, full-height, 32-bit PCI 2.3
Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*)
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: half-length, full-height, PCIe 3.0 x8
Slot 5: half-length, full-height, PCIe 3.0 x16
Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)

*** Single processor models: Slot 1, 2, 5 are functional*
Dual processor models: All six slot are functional

Ports

Front ports:	Two USB 2.0
Rear ports:	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector
Internal USB:	One internal USB port (Type A)

See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer TD340 Relationship Model

List of ThinkServer TD340 Relationship models

Type-model	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Optical	Discrete ethernet	Intelligent Diagnostics (IDM)	ThinkServer Management Module Premium (Premium)	Tower to Rack kit	Discrete Graphics	TPM	Preloaded OS	Power Supply	Warranty (-year, on-site)
Model(s) announced January 21, 2014																
70B60002UX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx4 1600MHz LVRDIMM	4x3.5" HS (SATA/SAS)	RAID500 +Upgrade	4x2TB 3.5" SATA	DVD±RW	350T2	IDM	TMM Premium	No	No	TPM	No	2x800W Redundant	3
70B60003UX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	2nd	8GBx8 1600MHz LVRDIMM	8x3.5" HS (SATA/SAS)	RAID700	8x2TB 3.5" SAS	DVD±RW	350T2	IDM	TMM Premium	No	No	TPM	No	2x800W Redundant	3
70B60004UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	2nd	8GBx12 1600MHz LVRDIMM	16x2.5" HS (SATA/SAS)	RAID710 +CacheVault	8x300GB 2.5" SAS	DVD±RW	350T4	IDM	TMM Premium	No	No	TPM	No	2x800W Redundant	3

Note:
- *For detailed platform specifications, please see ThinkServer TD340 Platform Specifications sheets*
- *For optional configurations of ThinkServer TD340, please see ThinkServer TD340 Optional Configurations sheets*
- *For ThinkServer TD340 operating system and virtualization supportability, please see ThinkServer TD340 Operating System and Virtualization Supportability Matrix sheets*
- *For Lenovo services upgrade options for ThinkServer TD340, please see ThinkServer TD340 Services Upgrade Options sheets*

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ThinkServer TD340 Platform Systems Specifications - I of II

<table>
<tr><th>Components</th><th>Specifications</th></tr>
<tr><td>Mechanical</td><td>• Tower, rack-mountable to 5U via optional conversion kit
• 7.68" W x 23.4" D x 16.9" H (without foot)
• 195mm W x 595mm D x 430mm H (without foot)
• 57.3 lb (26kg) max configuration</td></tr>
<tr><td>Chipset</td><td>Intel C606 Chipset</td></tr>
<tr><td>Processors</td><td>Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 v2 or Xeon E5-2400 families, the following processor options are supported:
<table>
<tr><th rowspan="2">Processor Number</th><th colspan="8">Processors Specifications*</th><th rowspan="2">Part Number</th></tr>
<tr><th># of Cores</th><th># of Threads</th><th>Clock Speed</th><th>Max Turbo Frequency</th><th>Cache</th><th>QPI Speed</th><th>Max TDP</th><th>Memory Speed</th></tr>
<tr><td colspan="10">Intel Xeon E5-2400 v2 Series</td></tr>
<tr><td>Xeon E5-2470 v2</td><td>10</td><td>20</td><td>2.4 GHz</td><td>3.2 GHz</td><td>25MB</td><td>8 GT/s</td><td>95W</td><td>DDR3-1600</td><td>0C19561</td></tr>
<tr><td>Xeon E5-2450L v2</td><td>10</td><td>20</td><td>1.7 GHz</td><td>2.1 GHz</td><td>25MB</td><td>7.2 GT/s</td><td>60W</td><td>DDR3-1600</td><td>0C19568</td></tr>
<tr><td>Xeon E5-2450 v2</td><td>8</td><td>16</td><td>2.5 GHz</td><td>3.3 GHz</td><td>20MB</td><td>8 GT/s</td><td>95W</td><td>DDR3-1600</td><td>0C19562</td></tr>
<tr><td>Xeon E5-2440 v2</td><td>8</td><td>16</td><td>1.9 GHz</td><td>2.4 GHz</td><td>20MB</td><td>7.2 GT/s</td><td>95W</td><td>DDR3-1600</td><td>0C19563</td></tr>
<tr><td>Xeon E5-2430L v2</td><td>6</td><td>12</td><td>2.4 GHz</td><td>2.8 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>60W</td><td>DDR3-1600</td><td>0C19569</td></tr>
<tr><td>Xeon E5-2430 v2</td><td>6</td><td>12</td><td>2.5 GHz</td><td>3 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>80W</td><td>DDR3-1600</td><td>0C19564</td></tr>
<tr><td>Xeon E5-2420 v2</td><td>6</td><td>12</td><td>2.2 GHz</td><td>2.7 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>80W</td><td>DDR3-1600</td><td>0C19565</td></tr>
<tr><td>Xeon E5-2407 v2</td><td>4</td><td>4</td><td>2.4 GHz</td><td>2.4 GHz</td><td>10MB</td><td>6.4 GT/s</td><td>80W</td><td>DDR3-1333</td><td>0C19566</td></tr>
<tr><td>Xeon E5-2403 v2</td><td>4</td><td>4</td><td>1.8 GHz</td><td>1.8 GHz</td><td>10MB</td><td>6.4 GT/s</td><td>80W</td><td>DDR3-1333</td><td>0C19567</td></tr>
<tr><td colspan="10">Intel Xeon E5-2400 Series</td></tr>
<tr><td>Xeon E5-2420</td><td>6</td><td>12</td><td>1.9 GHz</td><td>2.4 GHz</td><td>15MB</td><td>7.2 GT/s</td><td>95 W</td><td>DDR3-1333</td><td>0A89456</td></tr>
</table>
Notes:
All processors specifications is provided by Intel and may be changed at any time without notice.
The information herein is provided “as-is”.
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/</td></tr>
<tr><td>Memory type</td><td>1600MHz, LV UDIMM or LV RDIMM, DDR3, 3-channel per processor, 240-pin</td></tr>
<tr><td>Memory DIMMs</td><td>Twelve DIMM sockets, six DIMM sockets per processor</td></tr>
<tr><td>Memory capacity</td><td>Up to 192GB DDR3 LV RDIMM (16GB x 12) or up to 48GB DDR3 LV UDIMM (4GB x 12)</td></tr>
<tr><td>Memory protection</td><td>ECC, memory mirroring, memory sparing</td></tr>
<tr><td>Additional memory disclaimers</td><td>• Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs
• Maximum memory operating speed are 1333MT/s on LV UDIMM models
• Over six DIMMs requires dual processors
• Mixing of LV UDIMM or LV RDIMM is not supported</td></tr>
<tr><td>Disk bays configurations</td><td>Supports one of the following disk bay configurations:
4 x 3.5" non-hot swap disk bays, supports SATA non-hot swap hard drives
4 x 3.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives
8 x 3.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives
8 x 2.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives
16 x 2.5" hot-swap Disk bays, supports SATA/SAS hot-swap hard drives or SSD drives</td></tr>
<tr><td>RAID support</td><td>
<table>
<tr><th>RAID adapter</th><th>Disk type</th><th>RAID support*</th><th>Cache</th><th>Transfer rates</th><th>Optional upgrades</th></tr>
<tr><td>RAID 100 (onboard)</td><td>SATA</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 300 (onboard)</td><td>SATA/SAS</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 500 (LSI 9240-8i)</td><td>SATA/SAS</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5, 50 support</td></tr>
<tr><td>RAID 700 (LSI 9260-8i)</td><td>SATA/SAS</td><td>0, 1, 10, 5, 50, 6, 60</td><td>512MB</td><td>6Gb/s</td><td>optional intelligent Battery Backup Unit (iBBU08)</td></tr>
<tr><td>RAID 710 (LSI 9270CV-8i)</td><td>SATA/SAS</td><td>0, 1, 10, 5, 50, 6, 60</td><td>1GB</td><td>6Gb/s</td><td>• optional CacheVault (CV) flash cache with super capacitor
• optional CacheCade Pro 2.0
• optional FastPath key</td></tr>
</table>
*RAID 50, 60 are functional on 8 or 16 disk bay models only, RAID100 supports SATA drives only</td></tr>
<tr><td>Optical drive (optional)</td><td>Supports two half-height 5.25" optical bays, up to two optical drives</td></tr>
<tr><td>Onboard network</td><td>Two Gigabit Ethernet port via two Intel 82574L, either port can be set to dedicate/share management via BIOS</td></tr>
</table>

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ThinkServer TD340 Platform Systems Specifications - II of II

Components	Specifications	
Front ports	Two USB 2.0	
Rear ports	Four USB 2.0, one serial (9-pin), two ethernet (RJ-45, one for dedicate/share mgmt), one analog VGA DB-15 connector	
Internal USB	One internal USB port (Type A)	
Expansion Slots	Up to six PCI-Express slots (only slot 1, 2, 5 are functional for single processor models): Slot 1: half-length, full-height, 32-bit PCI 2.3 Slot 2: half-length, full-height, PCIe 3.0 x8 (*x4 elec*) Slot 3: half-length, full-height, PCIe 3.0 x8 Slot 4: half-length, full-height, PCIe 3.0 x8 Slot 5: half-length, full-height, PCIe 3.0 x16 Slot 6: half-length, full-height, PCIe 3.0 x8 (*near CPU*)	
Graphics	Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on rear (*Maximum resolution: 1600x1200@60Hz).* Discrete NVIDIA NVS 300 graphics adapter is available on selected models	
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) on selected models, IDM LED lights indicate failing component category	
Systems management (TMM Premium is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional **ThinkServer Management Module** Premium for iKVM functions • Front control panel LEDs shows the status of power, hard drive activity, network, system • ThinkServer EasyStartup/EasyManage/EasyUpdate	
Security features (TPM is optional)	Power-on password/administrator password/ Trusted Platform Module (TCG 1.2-compliant, optional)	
Power supply	Supports one of the follwing, depending on models: • One fixed 625 watts, universal, 80 PLUS Bronze qualified • Up to two redundant 800 watts, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies	
Safety, environment, and certifications	Environmental certifications	• **Energy Star Server 2.0** qualified for models with 800 watts hot-swap PSU • **Energy Star Server 1.1** qualified for models with 625 watts fixed PSU • RoHS-compliant
	EMC	FCC Class A, CSA, CE
	240VA	Supports
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (no package)	-10 °C to 60 °C
	Temperature - non operating (with package)	-40 °C to 60 °C
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	10%~80%, non-condensing
	Humidity - non operating (no package)	8%~90%, non-condensing
	Humidity - non operating (with package)	8%~90%, non-condensing
	Acoustic noise (idle/working mode)	

Category	System Configuration	
	Entry level	High-end
CPU	1 x CPU	2 x CPU
Optical Drive	1 DVD-ROM	1 DVD-ROM
Drive Bays	4 x 3.5“ direct cable	8 x 3.5“ hot-swap
HDD	2 x 500GB 3.5“ SATA	8 x 2TB 3.5" SAS
Memory	2GB x 1 (LV UDIMM)	8GB x 12 (LV RDIMM)
PSU	1 x 625 watts fixed	1 x 800 watts hot-swap
RAID	RAID 1	RAID 5
Expansion Adapters	No	1 x RAID 700 2 x Ethernet Adapters
Sound Pressure (operating)	37.0 dB(A)	42.0 dB(A)
Sound Pressure (idle)	35.0 dB(A)	38.0 dB(A)

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ThinkServer TD340 Optional Configurations

Partial list of accessories supported on ThinkServer TD340
ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: **bplocator.lenovo.com**

Option Number	Option Description
	Processors
0A89456	Intel Xeon E5-2420 Processor Option for ThinkServer TD340
0C19561	Intel Xeon E5-2470 v2 Processor Option for ThinkServer TD340
0C19562	Intel Xeon E5-2450 v2 Processor Option for ThinkServer TD340
0C19563	Intel Xeon E5-2440 v2 Processor Option for ThinkServer TD340
0C19564	Intel Xeon E5-2430 v2 Processor Option for ThinkServer TD340
0C19565	Intel Xeon E5-2420 v2 Processor Option for ThinkServer TD340
0C19566	Intel Xeon E5-2407 v2 Processor Option for ThinkServer TD340
0C19567	Intel Xeon E5-2403 v2 Processor Option for ThinkServer TD340
0C19568	Intel Xeon E5-2450L v2 Processor Option for ThinkServer TD340
0C19569	Intel Xeon E5-2430L v2 Processor Option for ThinkServer TD340
	Memory
0C19499	ThinkServer 4GB DDR3L-1600MHz (1Rx8) ECC UDIMM
0C19500	ThinkServer 8GB DDR3L-1600MHz (2Rx8) ECC UDIMM
0C19533	ThinkServer 4GB DDR3L-1600MHz (1Rx8) RDIMM
0C19534	ThinkServer 8GB DDR3L-1600MHz (2Rx8) RDIMM
0C19535	ThinkServer 16GB DDR3L-1600MHz (2Rx4) RDIMM
	Drives - 3.5"
	3.5" Cabled SATA Hard Drives
0C19501	ThinkServer 3.5” 500GB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19502	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19503	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19504	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive
0C19505	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive
	3.5" Hot Swap SATA Hard Drives
0A89473	ThinkServer 500GB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0A89474	ThinkServer 1TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0A89475	ThinkServer 2TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0A89477	ThinkServer 3TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
0C19520	ThinkServer 4TB 3.5" 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
	3.5" Hot Swap 7.2K SAS Hard Drives
0C19530	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive
0C19531	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive
0C19532	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive
	3.5" Hot Swap 15K SAS Hard Drives
67Y2616	ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive
4XB0F28644	ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive
	3.5" Hot Swap SATA Solid State Drives
0C19571	ThinkServer 2.5" 100GB MLC SATA Solid State Drive with 3.5" Kit
0C19572	ThinkServer 2.5" 200GB MLC SATA Solid State Drive with 3.5" Kit
0C19573	ThinkServer 2.5" 400GB MLC SATA Solid State Drive with 3.5" Kit
	Drives - 2.5"
	2.5" Hot Swap SATA Hard Drives
0C19495	ThinkServer 500GB 7.2K 2.5" Enterprise SATA 6Gbps Hot Swap Hard Drive
0C19496	ThinkServer 1TB 7.2K 2.5" Enterprise SATA 6Gbps Hot Swap Hard Drive
	2.5" Hot Swap 10K SAS Hard Drives
67Y2619	ThinkServer 300GB 2.5" 10K SAS 6Gbps Hot Swap Hard Drive
67Y2621	ThinkServer 600GB 2.5" 10K SAS 6Gbps Hot Swap Hard Drive
0A89409	ThinkServer 900GB 2.5" 10K SAS 6Gbps Hot Swap Hard Drive
	2.5" Hot Swap SATA Solid State Drives
0A89418	ThinkServer 2.5" 200GB MLC SATA Solid State Drive (HS)
0A89419	ThinkServer 2.5" 400GB MLC SATA Solid State Drive (HS)
0A89420	ThinkServer 2.5" 100GB MLC SATA Solid State Drive (HS)

Option Number	Option Description
	RAID
0A89422	ThinkServer RAID 300 Upgrade Key for Advanced RAID
0A89464	ThinkServer RAID 500 Adapter II
0A89407	ThinkServer RAID 500 Upgrade Key for Advanced RAID
0A89463	ThinkServer RAID 700 Adapter II
67Y2647	ThinkServer RAID 700 Battery
0C19489	ThinkServer RAID 710 Adapter
0C19490	ThinkServer RAID CacheVault Data Protection for RAID 710
0C19491	ThinkServer RAID FastPath Feature Upgrade Key for RAID 710
0C19492	ThinkServer RAID CacheCade Pro 2.0 Feature Upgrade Key for RAID 710
	Ethernet
0C19506	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter
0C19507	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter
0C19486	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter (SPF+)
0C19487	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter (Fibre)
0C19497	Lenovo 10Gbps Ethernet X540-T2 Server Adapter
0C19488	Lenovo 10Gbps Ethernet Fiber Module
	HBA
0C19476	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex
0C19478	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex
0C19483	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic
0C19482	ThinkServer QLE2562 Dual Port 8Gb Fibre Channel HBA by QLogic
	Redundant Power Supply
4X20E54691	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Tower
	Other
0C19515	ThinkServer Tower to Rack Shelf Conversion Kit
67Y2624	ThinkServer Management Controller Premium Upgrade
73P5220	Lenovo Preferred Pro Keyboard USB - US English 103P
06P4069	Lenovo Optical Mouse
	Microsoft Windows Server ROK
4XI0E51561	Windows Server 2012 R2 Standard ROK (2 CPU/2VMs)
4XI0E51562	Windows Server 2012 R2 Datacenter ROK (2 CPU)
4XI0E51563	Windows Server 2012 R2 Essentials ROK (1-2 CPU)
82972SM	Windows Server 2012 Standard ROK (2 CPU/2VMs)
82972DM	Windows Server 2012 Datacenter ROK (2 CPU)
82972EM	Windows Server 2012 Essentials ROK (1-2 CPU)

For more information on server accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkserveraccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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ThinkServer TD340 Operating System and Virtualization Supportability Matrix

List of operating system and virtualization software supported on ThinkServer TD340

Operating System/Virtualization	Certified	Support ROK	Supports EasyStartup	Preloaded
Windows Server 2008 x86 Edition				
Windows Server 2008 Standard Edition (x86)			•	
Windows Server 2008 Enterprise Edition (x86)			•	
Windows Server 2008 Datacenter Edition (x86)			•	
Windows Server 2008 x64 Edition				
Windows Server 2008 Standard Edition (x64) (Include Hyper-v)	•		•	
Windows Server 2008 Enterprise Edition (x64) (Include Hyper-v)	•		•	
Windows Server 2008 Datacenter Edition (x64) (Include Hyper-v)	•		•	
Windows Server 2008 R2 (x64) with SP1				
Windows Server 2008 Standard Edition R2 with SP1(Include Hyper-v)	•	•	•	
Windows Server 2008 Enterprise Edition R2 with SP1(Include Hyper-v)	•	•	•	
Windows Server 2008 Datacenter Edition R2 with SP1(Include Hyper-v)	•	•	•	
Windows Small Business Server 2011				
Windows Small Business Server 2011 Essentials	•		•	
Windows Small Business Server 2011 Standard	•	•	•	
Windows Small Business Server Premium Add-On (including Hyper-V)	•	•	•	
Windows Server 2012				
Windows Server 2012 Standard (Include Hyper-v)	•	•	•	•
Windows Server 2012 Datacenter (Include Hyper-v)	•	•	•	•
Windows Server 2012 Essentials	•	•	•	•
Windows Server 2012 R2				
Windows Server 2012 R2 Standard (Include Hyper-v)	•	•	•	•
Windows Server 2012 R2 Datacenter (Include Hyper-v)	•	•	•	•
Windows Server 2012 R2 Essentials	•	•	•	•
Windows Server 2012 R2 Hyper-V	•		•	
SUSE Linux Enterprise Server x86				
SUSE Linux Enterprise Server 10 sp4 (32 bit)			•	
SUSE Linux Enterprise Server 11 sp2 (32 bit)	•		•	
SUSE Linux Enterprise Server x64				
SUSE Linux Enterprise Server 10 sp4 (64 bit)			•	
SUSE Linux Enterprise Server 11 sp2 (64 bit)	•		•	
RedHat Enterprise Linux Server (RHEL) x86				
RedHat RHEL 5.9 (32 bit)	•		•	
RedHat RHEL 5.10 (32 bit)	•		•	
RedHat RHEL 6.4 (32 bit)	•		•	
RedHat RHEL 6.5 (32 bit)	•		•	
RedHat Enterprise Linux Server x64				
RedHat RHEL 5.9 (64 bit)	•		•	
RedHat RHEL 5.10 (64 bit)	•		•	
RedHat RHEL 6.4 (64 bit)	•		•	
RedHat RHEL 6.5 (64 bit)	•		•	
VMware x64				
Vmware ESXi 5.1 U1	•		•	•
Vmware ESXi 5.5	•		•	•
Citrix				
Citrix XenServer 6.1	•		•	
Citrix XenServer 6.02	•		•	

Note:

- *For more information on ThinkServer operating system and virtualization software, please visit ThinkServer Software page: http://shop.lenovo.com/us/en/servers/thinkserver/server-software.html*
- *For ThinkServer operating system and virtualization software options, please visit ThinkServer OS and virtualization Options document: http://www.lenovo.com/images/products/server/pdfs/datasheets/ThinkServer_OS_&_Virtualization_Options_Datasheet.pdf*

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ThinkServer TD340 Services Upgrade Options

Partial list of Lenovo Services for ThinkServer TD340 models with 3-year onsite base warranty
For more information see: **http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html**

Upgrade Service Description	Part Number
Warranty	
3-year Onsite 24x7x4 Hour Response	5WS0F46876
3-year Onsite 24x7x8 Hour Response	5WS0F46919
3-year Onsite 9x5x4 Hour Response	5WS0F46920
4-year Onsite 24x7x4 Hour Response	5WS0F46867
4-year Onsite 24x7x8 Hour Response	5WS0F46846
4-year Onsite 9x5x4 Hour Response	5WS0F46907
4-year Onsite NBD	5WS0F46930
5-year Onsite 24x7x4 Hour Response	5WS0F46937
5-year Onsite 24x7x8 Hour Response	5WS0F46861
5-year Onsite 9x5x4 Hour Response	5WS0F46903
5-year Onsite NBD	5WS0F46922
Keep Your Drive (KYD) Service	
3-year KYD	5WS0F46823
3-year Onsite 24x7x4 Hour Response + KYD	5WS0F46821
3-year Onsite 24x7x4 Hour Response + KYD + Priority Support	5WS0F46868
3-year Onsite 24x7x8 Hour Response + KYD	5WS0F46819
3-year Onsite 9x5x4 Hour Response + KYD	5WS0F46873
4-year Onsite 24x7x4 Hour Response + KYD	5WS0F46941
4-year Onsite 24x7x4 Hour Response + KYD + Priority Support	5WS0F46850
4-year Onsite 24x7x8 Hour Response + KYD	5WS0F46946
4-year Onsite 9x5x4 Hour Response + KYD	5WS0F46858
4-year Onsite NBD + KYD	5WS0F46869
5-year Onsite 24x7x4 Hour Response + KYD	5WS0F46866
5-year Onsite 24x7x8 Hour Response + KYD	5WS0F46934
5-year Onsite 9x5x4 Hour Response + KYD	5WS0F46852
5-year Onsite NBD + KYD	5WS0F46865
Priority Technical Support	
3-year KYD + Priority Support	5WS0F46940
3-year Onsite 24x7x4 Hour Response + Priority Support	5WS0F46900
3-year Onsite 24x7x8 Hour Response + KYD + Priority Support	5WS0F46862
3-year Onsite 24x7x8 Hour Response + Priority Support	5WS0F46889
3-year Onsite 24x7x8 Hour Support + Priority Support	5WS0F46897
3-year Onsite 9x5x4 Hour Response + KYD + Priority Support	5WS0F46915
3-year Onsite 9x5x4 Hour Response + Priority Support	5WS0F46935
3-year Priority Support	5WS0E76471
4-year Onsite 24x7x4 Hour Response + Priority Support	5WS0F46886
4-year Onsite 24x7x8 Hour Response + KYD + Priority Support	5WS0F46854
4-year Onsite 9x5x4 Hour Response + KYD + Priority Support	5WS0F46887
4-year Onsite 9x5x4 Hour Response + Priority Support	5WS0F46921
4-year Onsite NBD + KYD + Priority Support	5WS0F46884
4-year Onsite NBD + Priority Support	5WS0F46931
5-year Onsite 24x7x4 Hour Response + KYD + Priority Support	5WS0F46928
5-year Onsite 24x7x4 Hour Response + Priority Support	5WS0F46933
5-year Onsite 24x7x8 Hour Response + KYD + Priority Support	5WS0F46847
5-year Onsite 24x7x8 Hour Response + Priority Support	5WS0F46881
5-year Onsite 9x5x4 Hour Response + KYD + Priority Support	5WS0F46878
5-year Onsite 9x5x4 Hour Response + Priority Support	5WS0F46917
5-year Onsite NBD + KYD + Priority Support	5WS0F46926
5-year Onsite NBD + Priority Support	5WS0F46853
5-year Priority Support	5WS0E77173
5-year Onsite NBD + KYD + Priority Support	5PS0F15388
5-year Onsite NBD + Priority Support	5WS0F15463
5-year Priority Support	5WS0E77173

Upgrade Service Description	Part Number
Post Warranty	
1-year Onsite 24x7x4 Hour Response	5WS0F46814
1-year Onsite 24x7x4 Hour Response + KYD	5WS0F46817
1-year Onsite 24x7x4 Hour Response + KYD + Priority Support	5WS0F46828
1-year Onsite 24x7x4 Hour Response + Priority Support	5WS0F46831
1-year Onsite 24x7x8 Hour Response	5WS0F46822
1-year Onsite 24x7x8 Hour Response + KYD	5WS0F46825
1-year Onsite 24x7x8 Hour Response + KYD	5WS0F46838
1-year Onsite 24x7x8 Hour Response + Priority Support	5WS0F46842
1-year Onsite 9x5x4 Hour Response	5WS0F46833
1-year Onsite 9x5x4 Hour Response + KYD	5WS0F46834
1-year Onsite 9x5x4 Hour Response + KYD + Priority Support	5WS0F46848
1-year Onsite 9x5x4 Hour Response + Priority Support	5WS0F46849
1-year Onsite NBD	5WS0F46856
1-year Onsite NBD + KYD	5WS0F46845
1-year Onsite NBD + KYD + Priority Support	5WS0F46893
TopSeller Priority (TopSeller models only)	
3-year Onsite 24x7x4 Hour Response	5WS0F46918
3-year Onsite 9x5x4 Hour Response	5WS0F46924
4-year Onsite NBD	5WS0F46929
3-year Onsite 24x7x4 Hour Response + Priority Support	5WS0F46870
3-year Onsite 9x5x4 Hour Response + Priority Support	5WS0F46879
3-year Priority Support	5WS0E76457
4-year Priority Support	5WS0E76482

Note:

24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window *(requires Location Activation)*

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
- Best coverage for business critical work loads

9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window *(requires Location Activation)*

- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.

24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window *(requires Location Activation)*

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.

Priority Technical Support

Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.

Keep Your Drive (KYD) Service

Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.
To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html
Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

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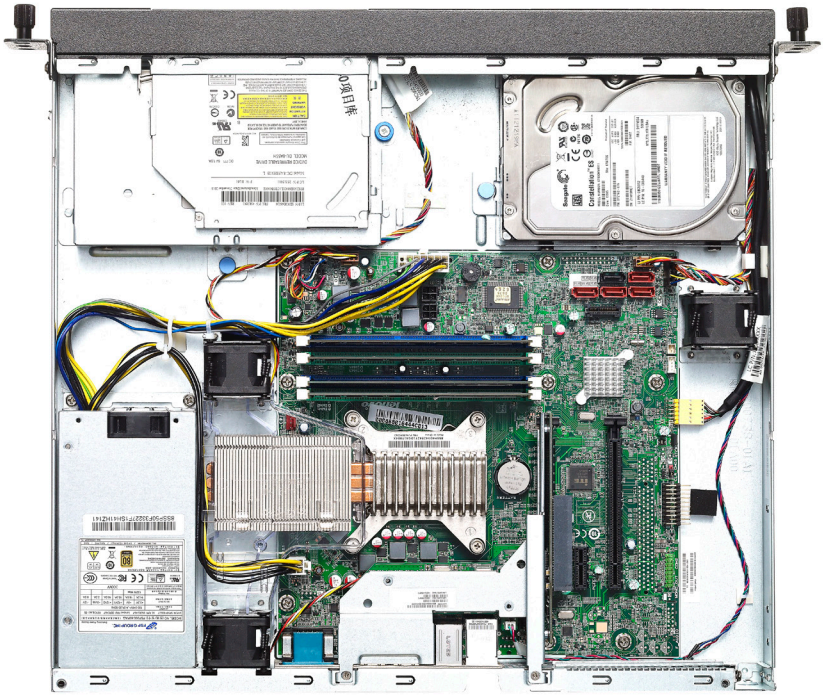
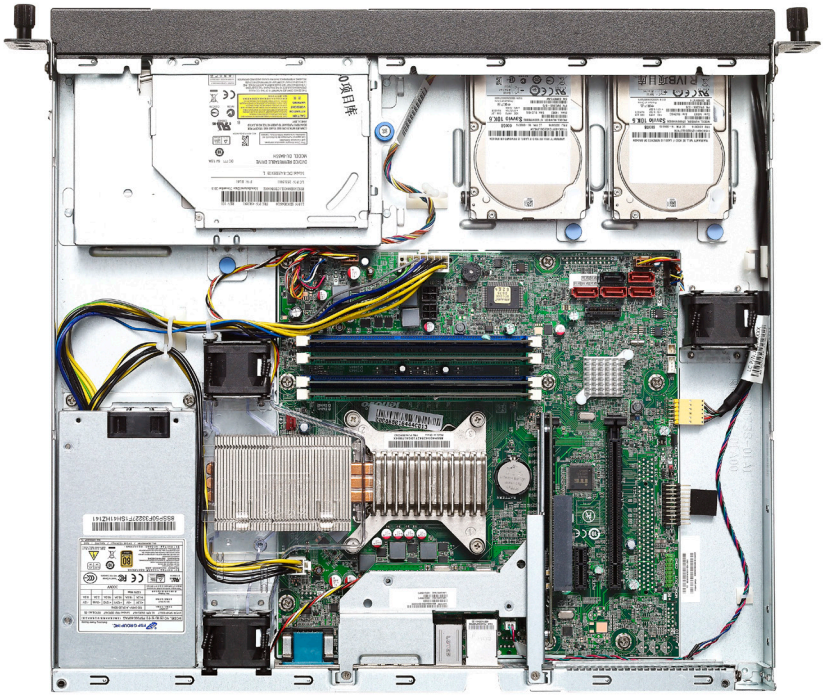


ThinkServer RS140 with 3.5" disk drive bay



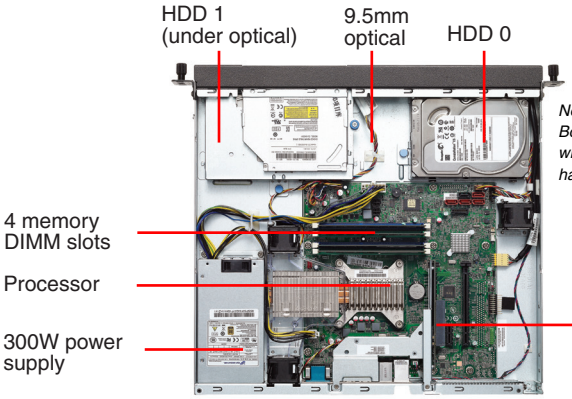
ThinkServer RS140 with 2.5" disk drive bay

ThinkServer RS140 with 3.5" Disk Bay TopSeller Models - 70F9 (June 2014)

Type-model[1]	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
70F90007UX	Core i3-4130 2C/3.4GHz/3MB/1600MHz/Intel HD 4400	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F90008UX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F90009UX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F9000AUX	Core i3-4130 2C/3.4GHz/3MB/1600MHz/Intel HD 4400	1 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F9000BUX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F9000CUX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F9000DUX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1

Components	Specification
Mechanical	• 1U rack with rail kit (2-post or 4-post, depending on models) • 16.9" W x 16.2" D x 1.71" H (with rack handles) • 430mm W x 411mm D x 43.5mm H (without foot) • 7.36 kg (16.2 lb) when fully configured
Chipset	Intel C226 Chipset, one LGA1150 socket for processor
Processor *(Xeon E3-12x6 v3 will be available until Sep 2014)*	Supports one of the following, depending on models: • One quad-core Xeon E3-12x5 v3 processor (up to 4C/3.6GHz/8MB/1600MHz) • One quad-core Xeon E3-12x6 v3 processor (up to 4C/3.7GHz/8MB/1600MHz) • One dual-core Core i3 processor (up to 2C/3.7GHz/4MB/1600MHz)
Memory DIMMs	Four DDR3 DIMM slots, 2-channel (integrated memory controller in processor)
Memory type/capacity	1600MHz DDR3, UDIMM, ECC; 32GB max
RAID support	RAID 0, 1 with RAID 100, RAID 500, and RAID 700. Optional intelligent Battery Backup Unit (iBBU08) is available for the RAID 700. RAID 100 supports SATA 6.0Gb/s, RAID 500 and RAID 700 supports SATA 6.0Gb/s and SAS 6.0 Gb/s
Optical drive	Supports one 9.5mm optical drive on selected model
Disk drive bays	Up to two 3.5" hard drives, non-hot swap (see right)
Onboard network interfaces	Two Gigabit Ethernet ports by Intel I210 on riser card; one Gigabit Ethernet port by Intel I217, dedicate/share management
Expansion slot	One PCI-Express slot via riser card, half-length, full-height, PCIe 3.0 x8
Front ports	Two USB 2.0
Rear ports	Four USB 3.0, two USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one VGA, one DisplayPort
Power supply	One fixed 300 watts power supply, 80-Plus Gold certified, non-hot swap
Systems management	• Intel Active Management Technology 9.1 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3/12x6 v3 processors) • ThinkServer EasyStartup/EasyUpdate
Security features	Power-on password, administrator password, and TPM (TCG 1.2-compliant)
Graphics	Integrated Intel HD Graphcis in processor
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere 5.5 (ESXi)
Declared Noise Emissions	Operating: < 5.2 Bels, Idle: < 5.0 Bels (Xeon E3-1225 v3/2 x 1TB 3.5" SATA/4GB x 1)
Limited warranty	1-year or 3-year limited onsite service. For more information and services upgrade options, please see: *http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html*

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing



Note:
Both disk drive bay and optical bay come without bracket, the bracket is included in hard drive and optical drive options

Core Options for ThinkServer RS140 with 3.5" disk bay (partial)

Option	Description
4XB0F28664	ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28665	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28666	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28667	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28668	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28669	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XB0F28670	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XB0F28671	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XF0F28767	ThinkServer 2-Post Rail kit for RS-Series
4XF0F28772	ThinkServer 4-Post Rail kit for RS-Series
0C19498	2GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19499	4GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19500	8GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0A89464	ThinkServer RAID 500 Adapter
0A89463	ThinkServer RAID 700 Adapter
67Y2647	ThinkServer RAID 700 Battery
4XB0F28645	ThinkServer 9280-8e 6G HBA
0C19506	Ethernet Server Adapter Card Dual Port - I350-T2
0C19507	Ethernet Server Adapter Card Quad Port - I350-T4
0C19511	PCI-E to 2 Serial port card

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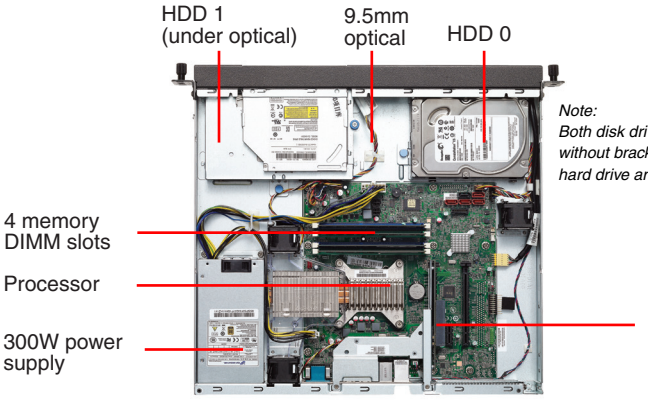
ThinkServer RS140 with 3.5" Disk Bay TopSeller Models - 70F9 (June 2014) - II

Type-model[1]	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
70F9000EUX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	2 x 8GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F9000FUS	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 500	RAID 1	2 x 500GB 3.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	2012 R2 Standard	1
70F9000GUS	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	2 x 8GB 1600MHz ECC	RAID 500	RAID 1	2 x 500GB 3.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	2012 R2 Standard	1
70F9000HUS	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 500	RAID 1	2 x 500GB 3.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	2012 R2 Essentials	1

Components	Specification
Mechanical	• 1U rack with rail kit (2-post or 4-post, depending on models) • 16.9" W x 16.2" D x 1.71" H (with rack handles) • 430mm W x 411mm D x 43.5mm H (without foot) • 7.36 kg (16.2 lb) when fully configured
Chipset	Intel C226 Chipset, one LGA1150 socket for processor
Processor *(Xeon E3-12x6 v3 will be available until Sep 2014)*	Supports one of the following, depending on models: • One quad-core Xeon E3-12x5 v3 processor (up to 4C/3.6GHz/8MB/1600MHz) • One quad-core Xeon E3-12x6 v3 processor (up to 4C/3.7GHz/8MB/1600MHz) • One dual-core Core i3 processor (up to 2C/3.7GHz/4MB/1600MHz)
Memory DIMMs	Four DDR3 DIMM slots, 2-channel (integrated memory controller in processor)
Memory type/capacity	1600MHz DDR3, UDIMM, ECC; 32GB max
RAID support	RAID 0, 1 with RAID 100, RAID 500, and RAID 700. Optional intelligent Battery Backup Unit (iBBU08) is available for the RAID 700. RAID 100 supports SATA 6.0Gb/s, RAID 500 and RAID 700 supports SATA 6.0Gb/s and SAS 6.0 Gb/s
Optical drive	Supports one 9.5mm optical drive on selected model
Disk drive bays	Up to two 3.5" hard drives, non-hot swap (see right)
Onboard network interfaces	Two Gigabit Ethernet ports by Intel I210 on riser card; one Gigabit Ethernet port by Intel I217, dedicate/share management
Expansion slot	One PCI-Express slot via riser card, half-length, full-height, PCIe 3.0 x8
Front ports	Two USB 2.0
Rear ports	Four USB 3.0, two USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one VGA, one DisplayPort
Power supply	One fixed 300 watts power supply, 80-Plus Gold certified, non-hot swap
Systems management	• Intel Active Management Technology 9.1 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3/12x6 v3 processors) • ThinkServer EasyStartup/EasyUpdate
Security features	Power-on password, administrator password, and TPM (TCG 1.2-compliant)
Graphics	Integrated Intel HD Graphcis in processor
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere 5.5 (ESXi)
Declared Noise Emissions	Operating: < 5.2 Bels, Idle: < 5.0 Bels (Xeon E3-1225 v3/2 x 1TB 3.5" SATA/4GB x 1)
Limited warranty	1-year or 3-year limited onsite service. For more information and services upgrade options, please see: *http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html*

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing



Note:
Both disk drive bay and optical bay come without bracket, the bracket is included in hard drive and optical drive options

Core Options for ThinkServer RS140 with 3.5" disk bay (partial)

Option	Description
4XB0F28664	ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28665	ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28666	ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28667	ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28668	ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28669	ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XB0F28670	ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XB0F28671	ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hard Drive for RS-Series
4XF0F28767	ThinkServer 2-Post Rail kit for RS-Series
4XF0F28772	ThinkServer 4-Post Rail kit for RS-Series
0C19498	2GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19499	4GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19500	8GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0A89464	ThinkServer RAID 500 Adapter
0A89463	ThinkServer RAID 700 Adapter
67Y2647	ThinkServer RAID 700 Battery
4XB0F28645	ThinkServer 9280-8e 6G HBA
0C19506	Ethernet Server Adapter Card Dual Port - I350-T2
0C19507	Ethernet Server Adapter Card Quad Port - I350-T4
0C19511	PCI-E to 2 Serial port card

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ThinkServer RS140 with 3.5" Disk Bay Relationship Models

Type-model[1]	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
Announced June 2014 - 70F8										
70F80000UX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	3
70F80001UX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	2 x 8GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	3

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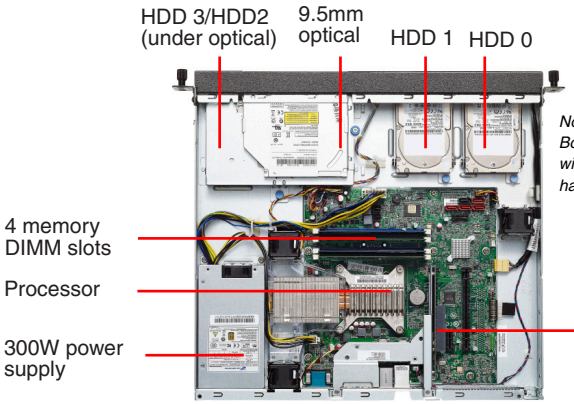
ThinkServer RS140 with 2.5" Disk Bay TopSeller Models - 70F3 (June 2014)

Type-model[1]	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
70F30006UX	Core i3-4130 2C/3.4GHz/3MB/1600MHz/Intel HD 4400	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F30007UX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F30008UX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 100	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F30009UX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F3000AUX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 4GB 1600MHz ECC	RAID 500	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F3000BUX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 8GB 1600MHz ECC	RAID 500 + upgrade key	No	Open	DVD±RW 9.5mm	No	4-Post	No	1
70F3000CUX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	1 x 8GB 1600MHz ECC	RAID 700	No	Open	DVD±RW 9.5mm	No	4-Post	No	1

Components	Specification
Mechanical	• 1U rack with rail kit (2-post or 4-post, depending on models) • 16.9" W x 16.2" D x 1.71" H (with rack handles) • 430mm W x 411mm D x 43.5mm H (without foot) • 6.85 kg (15.1 lb) when fully configured
Chipset	Intel C226 Chipset, one LGA1150 socket for processor
Processor *(Xeon E3-12x6 v3 will be available until Sep 2014)*	Supports one of the following, depending on models: • One quad-core Xeon E3-12x5 v3 processor (up to 4C/3.6GHz/8MB/1600MHz) • One quad-core Xeon E3-12x6 v3 processor (up to 4C/3.7GHz/8MB/1600MHz) • One dual-core Core i3 processor (up to 2C/3.7GHz/4MB/1600MHz)
Memory DIMMs	Four DDR3 DIMM slots, 2-channel (integrated memory controller in processor)
Memory type/capacity	1600MHz DDR3, UDIMM, ECC; 32GB max
RAID support	RAID 0, 1, 5, 10 with RAID 100. RAID 0, 1, 10 with RAID 500. RAID 0, 1, 5, 6, 10 with RAID 700. Optional RAID 5 upgrade key is available for the RAID 500, Optional intelligent Battery Backup Unit (iBBU08) is available for the RAID 700. RAID 100 supports SATA 6.0Gb/s, RAID 500 and RAID 700 supports SATA 6.0Gb/s and SAS 6.0 Gb/s
Optical drive	Supports one 9.5mm optical drive on selected model
Disk drive bays	Up to four 2.5" hard drives, non-hot swap (see right)
Onboard network interfaces	Two Gigabit Ethernet ports by Intel I210 on riser card; one Gigabit Ethernet port by Intel I217, dedicate/share management
Expansion slot	One PCI-Express slot via riser card, half-length, full-height, PCIe 3.0 x8
Front ports	Two USB 2.0
Rear ports	Four USB 3.0, two USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one VGA, one DisplayPort
Power supply	One fixed 300 watts power supply, 80-Plus Gold certified, non-hot swap
Systems management	• Intel Active Management Technology 9.1 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3/12x6 v3 processors) • ThinkServer EasyStartup/EasyUpdate
Security features	Power-on password, administrator password, and TPM (TCG 1.2-compliant)
Graphics	Integrated Intel HD Graphcis in processor
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere 5.5 (ESXi)
Declared Noise Emissions	Operating: < 5.2 Bels, Idle: < 5.0 Bels (Xeon E3-1225 v3/2 x 1TB 3.5" SATA/4GB x 1)
Limited warranty	1-year or 3-year limited onsite service. For more information and services upgrade options, please see: *http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html*

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing



Note:
Both disk drive bay and optical bay come without bracket, the bracket is included in hard drive, SSD drive and optical drive options

Core Options for ThinkServer RS140 with 2.5" disk bay (partial)

Option	Description
4XB0F28672	ThinkServer 2.5" 300GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28673	ThinkServer 2.5" 600GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28674	ThinkServer 2.5" 900GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28675	ThinkServer 2.5" 300GB 15K SAS 6Gbps Hard Drive for RS-Series
4XB0F28676	ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28677	ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28678	ThinkServer 2.5" 120GB SATA 6Gbps Solid State Drive for RS-Series
4XB0F28679	ThinkServer 2.5" 240GB SATA 6Gbps Solid State Drive for RS-Series
4XB0F28680	ThinkServer 2.5" 480GB SATA 6Gbps Solid State Drive for RS-Series
4XF0F28767	ThinkServer 2 Post Rail kit for RS-Series
4XF0F28772	ThinkServer 4 Post Rail kit for RS-Series
0C19499	4GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19500	8GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0A89464	ThinkServer RAID 500 Adapter
0A89407	ThinkServer RAID 500 Upgrade Key for Advanced RAID
0A89463	ThinkServer RAID 700 Adapter
67Y2647	ThinkServer RAID 700 Battery
4XB0F28645	ThinkServer 9280-8e 6G HBA
0C19506	Ethernet Server Adapter Card Dual Port - I350-T2
0C19507	Ethernet Server Adapter Card Quad Port - I350-T4
0C19511	PCI-E to 2 Serial port card

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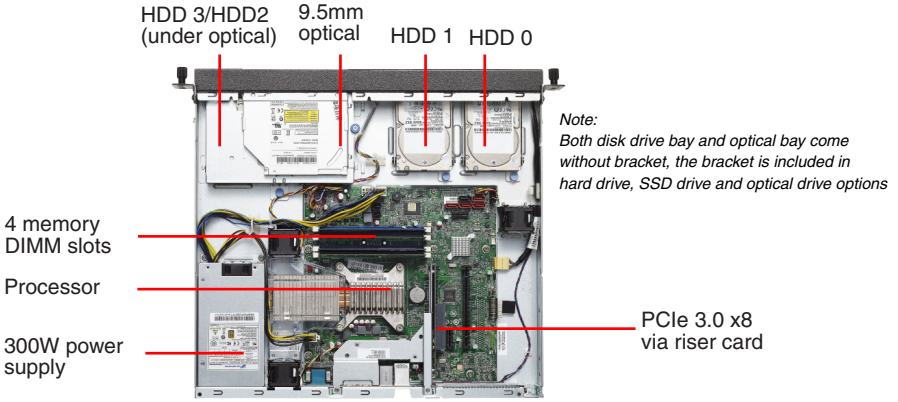
ThinkServer RS140 with 2.5" Disk Bay TopSeller Models - 70F3 (June 2014) - II

Type-model[1]	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
70F3000DUS	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 500 + upgrade key	RAID 1	2 x 500GB 2.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	2012 R2 Standard	1
70F3000EUS	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	2 x 8GB 1600MHz ECC	RAID 700	RAID 5	4 x 500GB 2.5" SATA 7.2K	DVD±RW 9.5mm	No	4-Post	2012 R2 Standard	1

Components	Specification
Mechanical	• 1U rack with rail kit (2-post or 4-post, depending on models) • 16.9" W x 16.2" D x 1.71" H (with rack handles) • 430mm W x 411mm D x 43.5mm H (without foot) • 6.85 kg (15.1 lb) when fully configured
Chipset	Intel C226 Chipset, one LGA1150 socket for processor
Processor *(Xeon E3-12x6 v3 will be available until Sep 2014)*	Supports one of the following, depending on models: • One quad-core Xeon E3-12x5 v3 processor (up to 4C/3.6GHz/8MB/1600MHz) • One quad-core Xeon E3-12x6 v3 processor (up to 4C/3.7GHz/8MB/1600MHz) • One dual-core Core i3 processor (up to 2C/3.7GHz/4MB/1600MHz)
Memory DIMMs	Four DDR3 DIMM slots, 2-channel (integrated memory controller in processor)
Memory type/capacity	1600MHz DDR3, UDIMM, ECC; 32GB max
RAID support	RAID 0, 1, 5, 10 with RAID 100. RAID 0, 1, 10 with RAID 500. RAID 0, 1, 5, 6, 10 with RAID 700. Optional RAID 5 upgrade key is available for the RAID 500, Optional intelligent Battery Backup Unit (iBBU08) is available for the RAID 700. RAID 100 supports SATA 6.0Gb/s, RAID 500 and RAID 700 supports SATA 6.0Gb/s and SAS 6.0 Gb/s
Optical drive	Supports one 9.5mm optical drive on selected model
Disk drive bays	Up to four 2.5" hard drives, non-hot swap (see right)
Onboard network interfaces	Two Gigabit Ethernet ports by Intel I210 on riser card; one Gigabit Ethernet port by Intel I217, dedicate/share management
Expansion slot	One PCI-Express slot via riser card, half-length, full-height, PCIe 3.0 x8
Front ports	Two USB 2.0
Rear ports	Four USB 3.0, two USB 2.0, one serial (9-pin), two ethernet (RJ-45), one RJ-45 (dedicate/share mgmt), one VGA, one DisplayPort
Power supply	One fixed 300 watts power supply, 80-Plus Gold certified, non-hot swap
Systems management	• Intel Active Management Technology 9.1 on models with Xeon processor (KVM function needs Intel Xeon E3-12x5 v3/12x6 v3 processors) • ThinkServer EasyStartup/EasyUpdate
Security features	Power-on password, administrator password, and TPM (TCG 1.2-compliant)
Graphics	Integrated Intel HD Graphcis in processor
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere 5.5 (ESXi)
Declared Noise Emissions	Operating: < 5.2 Bels, Idle: < 5.0 Bels (Xeon E3-1225 v3/2 x 1TB 3.5" SATA/4GB x 1)
Limited warranty	1-year or 3-year limited onsite service. For more information and services upgrade options, please see: *http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html*

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - non operating (no package)	-10 °C to 60 °C
Temperature - non operating (with package)	-40 °C to 70 °C
Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - non operating (no package)	10%~90%, non-condensing
Humidity - non operating (with package)	10%~90%, non-condensing



Note:
Both disk drive bay and optical bay come without bracket, the bracket is included in hard drive, SSD drive and optical drive options

Core Options for ThinkServer RS140 with 2.5" disk bay (partial)

Option	Description
4XB0F28672	ThinkServer 2.5" 300GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28673	ThinkServer 2.5" 600GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28674	ThinkServer 2.5" 900GB 10K SAS 6Gbps Hard Drive for RS-Series
4XB0F28675	ThinkServer 2.5" 300GB 15K SAS 6Gbps Hard Drive for RS-Series
4XB0F28676	ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28677	ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series
4XB0F28678	ThinkServer 2.5" 120GB SATA 6Gbps Solid State Drive for RS-Series
4XB0F28679	ThinkServer 2.5" 240GB SATA 6Gbps Solid State Drive for RS-Series
4XB0F28680	ThinkServer 2.5" 480GB SATA 6Gbps Solid State Drive for RS-Series
4XF0F28767	ThinkServer 2 Post Rail kit for RS-Series
4XF0F28772	ThinkServer 4 Post Rail kit for RS-Series
0C19499	4GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0C19500	8GB PC3-12800E 1600MHz DDR3 ECC-UDIMM
0A89464	ThinkServer RAID 500 Adapter
0A89407	ThinkServer RAID 500 Upgrade Key for Advanced RAID
0A89463	ThinkServer RAID 700 Adapter
67Y2647	ThinkServer RAID 700 Battery
4XB0F28645	ThinkServer 9280-8e 6G HBA
0C19506	Ethernet Server Adapter Card Dual Port - I350-T2
0C19507	Ethernet Server Adapter Card Quad Port - I350-T4
0C19511	PCI-E to 2 Serial port card

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ThinkServer RS140 with 2.5" Disk Bay Relationship Models

Type-model[1]	Processor (Core/GHz/Cache/Memory speed/Intel HD Graphics)	Memory	RAID controller	Pre-conf RAID	Storage	Optical	Discrete ethernet	Rail kit	Preloaded OS	Base warranty (-year, on-site)
Announced June 2014 - 70F2										
70F20001UX	Xeon E3-1225 v3 4C/3.2GHz/8MB/1600MHz/Intel HD P4600	2 x 4GB 1600MHz ECC	RAID 100	No	Open	No	No	4-Post	No	3
70F20002UX	Xeon E3-1245 v3 4C/3.4GHz/8MB/1600MHz/Intel HD P4600	2 x 8GB 1600MHz ECC	RAID 700	No	Open	No	No	4-Post	No	3

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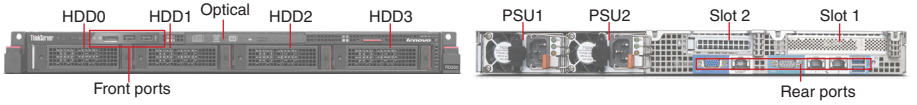
June 2014

ThinkServer RD350 with 3.5" Disk Drive Bay - TopSeller - 70D6 (December 2014)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module	Optical	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70D6000XUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28847	1x4GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No	DVD±RW	1	No	TPM	Switch	TSM Premium	450Wx1 Gold	No	Slide	3-year
70D6000YUX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28846	1x8GB 2133MHz RDIMM	RAID500	4x3.5" HS	Open	No	DVD±RW	1	No	TPM	Switch	TSM Premium	450Wx2 Gold	No	Slide	3-year
70D60010UX	1xXeon E5-2650 v3 10C/ 2.3GHz/25MB/105W/2133MHz	4XG0F28843	1x16GB 2133MHz RDIMM	RAID710 +CacheVault	4x3.5" HS	Open	No	DVD±RW	1	No	TPM	Switch	TSM Premium	450Wx2 Gold	No	Slide	3-year
70D60011UX	2xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	-	8x16GB 2133MHz RDIMM	RAID710	4x3.5" HS	1x4TB 3.5" SATA6.0 7.2K HDD	No	DVD±RW	2	No	TPM	Switch	TSM Premium	550Wx2 Platinum	No	Slide	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5. **RAID 0**, **1**, **10**, **5**, **6** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 4 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)



Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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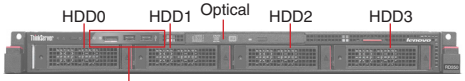
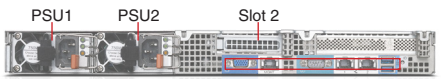
ThinkServer RD350 with 3.5" Disk Drive Bay - TopSeller - 70D6 (December 2014) - II

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module	Optical	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70D6001YUX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28848	1x4GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	No	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D60020UX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28847	1x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D60021UX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28846	1x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D60022UX	2xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	-	2x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5. **RAID 0**, **1**, **10**, **5**, **6** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 4 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)





Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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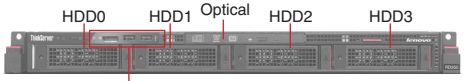
ThinkServer RD350 with 3.5" Disk Drive Bay - TopSeller - 70D6 (December 2014) - III

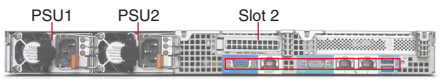
Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module	Optical	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70D60023UX	1xXeon E5-2650 v3 10C/ 2.3GHz/25MB/105W/2133MHz	4XG0F28843	1x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D60024UX	1xXeon E5-2660 v3 10C/ 2.6GHz/25MB/105W/2133MHz	4XG0F28842	1x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D60025UX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28848	1x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D60026UX	1xXeon E5-2630 v3 8C/ 2.4GHz/20MB/85W/1866MHz	4XG0F28845	1x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5. **RAID 0**, **1**, **10**, **5**, **6** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 4 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)





Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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ThinkServer RD350 with 3.5" Disk Drive Bay - TopSeller - 70D6 (February 2015)

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Base wty
70D60035UX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	2x8GB 2133MHz RDIMM	RAID110i	4x3.5" HS	2x1TB 3.5" SATA6Gbs 7.2K	No	1	DVD±RW	No	TPM	No	TSM Premium	No	750Wx2 Platinum	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5. **RAID 0**, **1**, **10**, **5**, **6** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 4 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD) 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)

Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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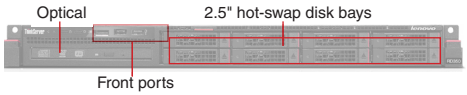
ThinkServer RD350 with 2.5" Disk Drive Bay - TopSeller - 70D8 (December 2014)

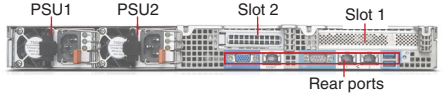
Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module	Optical	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70D8000TUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28847	1x8GB 2133MHz RDIMM	RAID710 +CacheVault	8x2.5" HS	Open	No	DVD±RW	1	No	TPM	Switch	TSM Premium	550Wx1 Platinum	No	Slide	3-year
70D8000UUX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28846	1x16GB 2133MHz RDIMM	RAID710 +CacheVault	8x2.5" HS	Open	No	DVD±RW	1	No	TPM	Switch	TSM Premium	550Wx1 Platinum	No	Slide	3-year
70D8000VUX	2xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	-	8x16GB 2133MHz RDIMM	RAID710 +CacheVault	8x2.5" HS	6x300GB 2.5" SAS6.0 10K HDD	No	DVD±RW	2	No	TPM	Switch	TSM Premium	750Wx2 Platinum	No	Slide	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 2.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)





Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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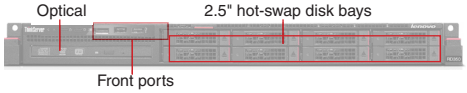
ThinkServer RD350 with 2.5" Disk Drive Bay - TopSeller - 70D8 (December 2014) - II

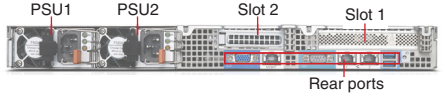
Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module	Optical	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70D8001TUX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28848	1x4GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	No	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D8001UUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28847	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D8001VUX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28846	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D8001WUX	1xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	4XG0F28844	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 2.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)





Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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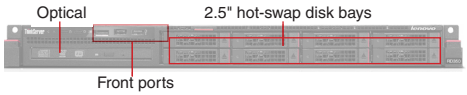
ThinkServer RD350 with 2.5" Disk Drive Bay - TopSeller - 70D8 (December 2014) - III

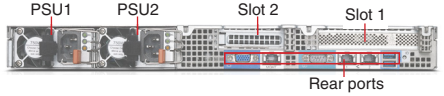
Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module	Optical	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70D8001XUX	1xXeon E5-2650 v3 10C/ 2.3GHz/25MB/105W/2133MHz	4XG0F28843	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D8001YUX	1xXeon E5-2660 v3 10C/ 2.6GHz/25MB/105W/2133MHz	4XG0F28842	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D80020UX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28848	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70D80021UX	1xXeon E5-2630 v3 8C/ 2.4GHz/20MB/85W/1866MHz	4XG0F28845	1x8GB 2133MHz RDIMM	RAID110i	8x2.5" HS	Open	No SD module	DVD±RW	1	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	1U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 2.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports (RJ-45). Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac power supplies. 550 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	6 (5+1, dual processors) or 4 (3+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.4 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 13 kg (28.66 lb), maximum: 19.1 kg (42.11 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 781.5 mm (30.77 in)





Expansion slots

Up to 2 PCIe 3.0 slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x16, half length, full height, CPU1
Slot 2 (riser card 2): PCIe 3.0 x16, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU

Core options for ThinkServer RD350 (partial)

4X70F28590 16GB 2R x4 PC4-17000R RDIMM DDR4-2133 4Gbit
4X70F28591 32GB 4R x4 PC4-17000LR LRDIMM DDR4-2133 4Gbit
4XF0G45865 SDHC Flash Memory Module
4X70F28593 32GB SDHC Flash Memory card
4XB0F28690 Lenovo ThinkServer RAID110i Raid 5 Upgrade
4XB0G45759 ThinkServer RAID 500 Upgrade Key for Advanced RAID
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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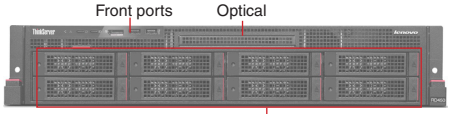
ThinkServer RD450 with 3.5" Disk Drive Bay - TopSeller - 70DC (December 2014)

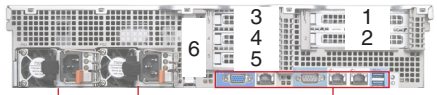
Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DC000YUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28859	1x8GB 2133MHz RDIMM	RAID500 +key	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	Switch	TSM Premium	450Wx1 Gold	No	Slide	3-year
70DC0010UX	2xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	-	4x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	1x8GB/No	DVD±RW	None	6	No	TPM	Switch	TSM Premium	450Wx2 Gold	No	Slide	3-year
70DC0011UX	2xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	-	8x16GB 2133MHz RDIMM	RAID710 +CacheVault	8x3.5" HS	4x4TB 3.5" SAS6.0 7.2K HDD	1x32GB/No	DVD±RW	None	6	No	TPM	Switch	TSM Premium	450Wx2 Gold	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs): 200GB/400GB/800GB 2.5" SATA SSD (6Gbs): 120GB/240GB/300GB/480GB/600GB/800GB PCIe 2.0 x8 SSD adapter: 1.6TB/3.2TB SDHC flash card: 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)





Expansion slots

Up to 6 PCIe 3.0 slots: one vertical onboard PCIe slot, up to 5 PCIe slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 2 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 32GB DDR4-2133MHz (4Rx4) LRDIMM
4XB0G45719 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45735 3.5" 800GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45747 3.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45865 SDHC Flash Assembly Module
4X70F28593 32GB SD Card
4XB0G45760 RD350,RD450 RAID 710 PCIe Adapter
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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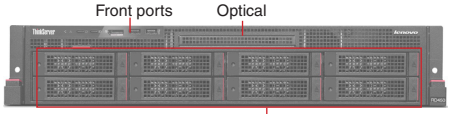
ThinkServer RD450 with 3.5" Disk Drive Bay - TopSeller - 70DC (December 2014) - II

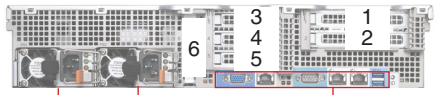
Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DC001CUX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28860	1x4GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	No	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DC001DUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28859	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DC001EUX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28858	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DC001FUX	1xXeon E5-2630 v3 8C/ 2.4GHz/20MB/85W/1866MHz	4XG0F28857	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DC001GUX	1xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	4XG0F28856	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs): 200GB/400GB/800GB 2.5" SATA SSD (6Gbs): 120GB/240GB/300GB/480GB/600GB/800GB PCIe 2.0 x8 SSD: 1.6TB/3.2TB SDHC flash card: 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)





Expansion slots

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Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

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4X70F28591 32GB DDR4-2133MHz (4Rx4) LRDIMM
4XB0G45719 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45735 3.5" 800GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45747 3.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45865 SDHC Flash Assembly Module
4X70F28593 32GB SD Card
4XB0G45760 RD350,RD450 RAID 710 PCIe Adapter
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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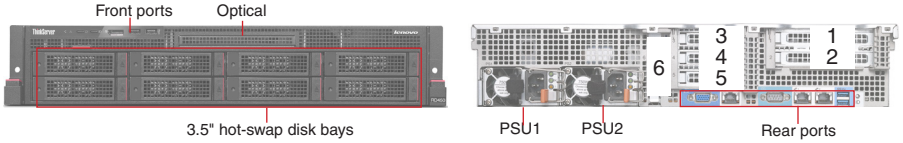
ThinkServer RD450 with 3.5" Disk Drive Bay - TopSeller - 70DC (December 2014) - III

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DC001HUX	1xXeon E5-2650 v3 10C/ 2.3GHz/25MB/105W/2133MHz	4XG0F28855	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DC001JUX	1xXeon E5-2660 v3 10C/ 2.6GHz/25MB/105W/2133MHz	4XG0F28854	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DC001KUX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28860	1x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	Open	No/No	DVD±RW	None	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs): 200GB/400GB/800GB 2.5" SATA SSD (6Gbs): 120GB/240GB/300GB/480GB/600GB/800GB PCIe 2.0 x8 SSD: 1.6TB/3.2TB SDHC flash card: 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

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Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

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ThinkServer RD450 with 3.5" Disk Drive Bay - TopSeller - 70DC (February 2015)

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	RAID controller	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Base wty
70DC002EUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	2x8GB 2133MHz RDIMM	RAID110i	8x3.5" HS	2x1TB 3.5" SATA6Gbs 7.2K	No	2	DVD±RW	No	TPM	No	TSM Premium	No	750Wx2 Platinum	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
RAID support	**RAID 0**, **1**, **10** with embedded **RAID 110i**, 6Gb/s SATA, optional key for RAID5. **RAID 0**, **1**, **10** with **RAID 500**, PCIe adapter, 6Gb/s SAS/SATA, optional key for RAID5/50. **RAID 0**, **1**, **10**, **5**, **50**, **6**, **60** with **RAID 710**, PCIe adapter, 6Gb/s SAS/SATA, 1GB memory, optional CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath upgrade key
Disk drive bays	Up to 8 x 3.5" disk drive bays
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	3.5" SATA (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 3.5" SAS (7.2K 6Gbs HDD): 1TB/2TB/3TB/4TB/ 2.5" SAS SSD (12Gbs): 200GB/400GB/800GB 2.5" SATA SSD (6Gbs): 120GB/240GB/300GB/480GB/600GB/800GB PCIe 2.0 x8 SSD: 1.6TB/3.2TB SDHC flash card: 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module. 3. On 3.5" models, 2.5" drive comes with a 3.5" carrier.*
Optical drive	Optional one UltraSlim optical drive bay, supports DVD-ROM or DVD±RW
Tape drive bays	No internal tape bay
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
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Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
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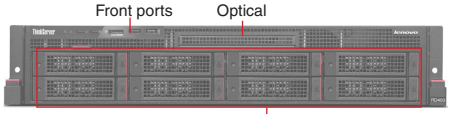
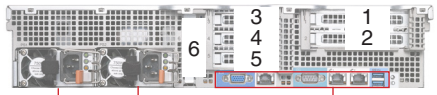
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)





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Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 32GB DDR4-2133MHz (4Rx4) LRDIMM
4XB0G45719 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45735 3.5" 800GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45747 3.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45865 SDHC Flash Assembly Module
4X70F28593 32GB SD Card
4XB0G45760 RD350,RD450 RAID 710 PCIe Adapter
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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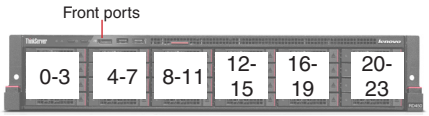
ThinkServer RD450 with 2.5" Disk Drive Bay - TopSeller - 70DA (December 2014)

Product Specifications Reference (PSREF)

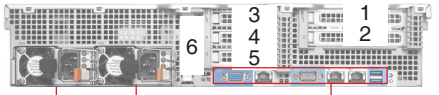
Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DA000UUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28859	1x4GB 2133MHz RDIMM	110i +key	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	Switch	TSM Premium	550Wx2 Platinum	No	Slide	3-year
70DA000VUX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28858	1x8GB 2133MHz RDIMM	510i +key	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	Switch	TSM Premium	550Wx2 Platinum	No	Slide	3-year
70DA000WUX	2xXeon E5-2650 v3 10C/ 2.3GHz/25MB/105W/2133MHz	-	8x16GB 2133MHz RDIMM	720i +1GB RAM	8x2.5" HS	6x300GB 2.5" SAS6.0 10K HDD	No/No	DVD±RW	No	6	No	TPM	Switch	TSM Premium	550Wx2 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i/510i/720i/720ix for 8 x 2.5" model, 720ix for 16 or 24x 2.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 8 x 2.5" (Bay 0-7) disk drive bays, or up to 16 x 2.5" (Bay 0-15) disk drive bays, or up to 24 x 2.5" (Bay 0-23) disk drive bays (see right)
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD): 500GB/1TB 2.5" SAS (10K 6Gbs HDD): 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD): 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs): 200GB/400GB/800GB 2.5" SATA SSD (6Gbs): 120GB/240GB/300GB/480GB/600GB/800GB Tape drive: 2.5TB PCIe 2.0 x8 SSD: 1.6TB/3.2TB SDHC flash card: 8GB/32GB *Note: SAS drive needs SAS adapter.*
Optical drive	Optional one UltraSlim optical drive bay on 8 and 16 x 2.5" bays model, supports DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive. 8 x 2.5" model only. AnyRAID 720ix is needed
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 450 W is supported on 8 x 2.5" models only

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Tape drive and optical are located in bay 16-23



Expansion slots

Up to 6 PCIe 3.0 slots: one vertical onboard PCIe slot, up to 5 PCIe slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 2 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45866 LTO-6 Linear Tape Drive Kit by Tandberg
4XB0G45757 Lenovo ThinkServer RD450 Raid 720ix AnyRAID Adapter with Expander
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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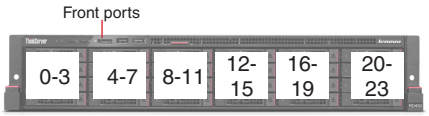
ThinkServer RD450 with 2.5" Disk Drive Bay - TopSeller - 70DA (December 2014) - II

Product Specifications Reference (PSREF)

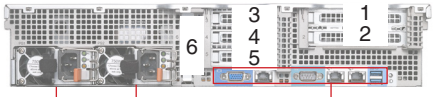
Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DA000XUX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28860	1x4GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	DVD±RW	No	No	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DA000YUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28859	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DA0010UX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28858	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DA0011UX	1xXeon E5-2630 v3 8C/ 2.4GHz/20MB/85W/1866MHz	4XG0F28857	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i/510i/720i/720ix for 8 x 2.5" model, 720ix for 16 or 24x 2.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 8 x 2.5" (Bay 0-7) disk drive bays, or up to 16 x 2.5" (Bay 0-15) disk drive bays, or up to 24 x 2.5" (Bay 0-23) disk drive bays (see right)
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB Tape drive 2.5TB PCIe 2.0 x8 SSD 1.6TB/3.2TB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay on 8 and 16 x 2.5" bays model, supports DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive. 8 x 2.5" model only. AnyRAID 720ix is needed
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 450 W is supported on 8 x 2.5" models only

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Tape drive and optical are located in bay 16-23



Expansion slots

Up to 6 PCIe 3.0 slots: one vertical onboard PCIe slot, up to 5 PCIe slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 2 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45866 LTO-6 Linear Tape Drive Kit by Tandberg
4XB0G45757 Lenovo ThinkServer RD450 Raid 720ix AnyRAID Adapter with Expander
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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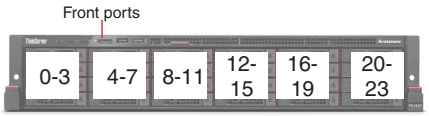
ThinkServer RD450 with 2.5" Disk Drive Bay - TopSeller - 70DA (December 2014) - III

Product Specifications Reference (PSREF)

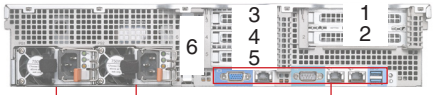
Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DA0012UX	1xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	4XG0F28856	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DA0013UX	1xXeon E5-2660 v3 10C/ 2.6GHz/25MB/105W/2133MHz	4XG0F28854	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	DVD±RW	No	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year
70DA0014UX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28860	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No/No	No	No	2	No	TPM	No	TSM	550Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i/510i/720i/720ix for 8 x 2.5" model, 720ix for 16 or 24x 2.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 8 x 2.5" (Bay 0-7) disk drive bays, or up to 16 x 2.5" (Bay 0-15) disk drive bays, or up to 24 x 2.5" (Bay 0-23) disk drive bays (see right)
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB Tape drive 2.5TB PCIe 2.0 x8 SSD 1.6TB/3.2TB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay on 8 and 16 x 2.5" bays model, supports DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive. 8 x 2.5" model only. AnyRAID 720ix is needed
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 450 W is supported on 8 x 2.5" models only

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Tape drive and optical are located in bay 16-23



Expansion slots

Up to 6 PCIe 3.0 slots: one vertical onboard PCIe slot, up to 5 PCIe slots via two optional riser cards.
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Slot 2 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45866 LTO-6 Linear Tape Drive Kit by Tandberg
4XB0G45757 Lenovo ThinkServer RD450 Raid 720ix AnyRAID Adapter with Expander
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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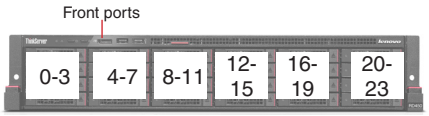
ThinkServer RD450 with 2.5" Disk Drive Bay - TopSeller - 70DV (December 2014)

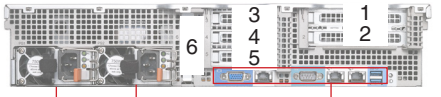
Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DV0008UX	1xXeon E5-2603 v3 6C/ 1.6GHz/15MB/85W/1600MHz	4XG0F28860	1x4GB 2133MHz RDIMM	720ix +1GB RAM	16x2.5" HS	Open	No/No	No	None	No	No	TPM	No	TSM	750Wx1 Platinum	No	Slide	3-year
70DV0009UX	1xXeon E5-2620 v3 +6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28858	1x8GB 2133MHz RDIMM	720ix +1GB RAM	16x2.5" HS	Open	No/No	No	None	2	No	TPM	No	TSM	750Wx1 Platinum	No	Slide	3-year
70DV000AUX	1xXeon E5-2640 v3 +8C/ 2.6GHz/20MB/90W/1866MHz	4XG0F28856	1x8GB 2133MHz RDIMM	720ix +1GB RAM	16x2.5" HS	Open	No/No	No	None	2	No	TPM	No	TSM	750Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i/510i/720i/720ix for 8 x 2.5" model, 720ix for 16 or 24x 2.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 8 x 2.5" (Bay 0-7) disk drive bays, or up to 16 x 2.5" (Bay 0-15) disk drive bays, or up to 24 x 2.5" (Bay 0-23) disk drive bays (see right)
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB Tape drive 2.5TB PCIe 2.0 x8 SSD 1.6TB/3.2TB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay on 8 and 16 x 2.5" bays model, supports DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive. 8 x 2.5" model only. AnyRAID 720ix is needed
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 450 W is supported on 8 x 2.5" models only

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Tape drive and optical are located in bay 16-23



Expansion slots

Up to 6 PCIe 3.0 slots: one vertical onboard PCIe slot, up to 5 PCIe slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 2 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45866 LTO-6 Linear Tape Drive Kit by Tandberg
4XB0G45757 Lenovo ThinkServer RD450 Raid 720ix AnyRAID Adapter with Expander
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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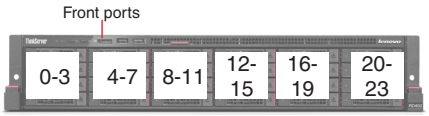
ThinkServer RD450 with 2.5" Disk Drive Bay - TopSeller - 70DE (December 2014)

Product Specifications Reference (PSREF)

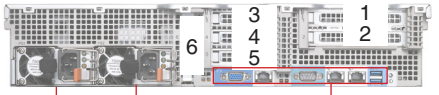
Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DE000BUX	1xXeon E5-2650 v3 10C/ 2.3GHz/25MB/105W/2133MHz	4XG0F28855	1x16GB 2133MHz RDIMM	720ix +1GB RAM	24x2.5" HS	Open	No/No	None	None	2	No	TPM	Switch	TSM Premium	750Wx1 Platinum	No	Slide	3-year
70DE000CUX	2xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	-	8x16GB 2133MHz RDIMM	720ix +1GB RAM	24x2.5" HS	8x300GB 2.5" SAS6.0 10K HDD	1x32GB/No	None	None	6	No	TPM	Switch	TSM Premium	750Wx2 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i/510i/720i/720ix for 8 x 2.5" model, 720ix for 16 or 24x 2.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 8 x 2.5" (Bay 0-7) disk drive bays, or up to 16 x 2.5" (Bay 0-15) disk drive bays, or up to 24 x 2.5" (Bay 0-23) disk drive bays (see right)
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD): 500GB/1TB 2.5" SAS (10K 6Gbs HDD): 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD): 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs): 200GB/400GB/800GB 2.5" SATA SSD (6Gbs): 120GB/240GB/300GB/480GB/600GB/800GB Tape drive: 2.5TB PCIe 2.0 x8 SSD: 1.6TB/3.2TB SDHC flash card: 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay on 8 and 16 x 2.5" bays model, supports DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive. 8 x 2.5" model only. AnyRAID 720ix is needed
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 450 W is supported on 8 x 2.5" models only

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one VGA on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)
Cooling	4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Tape drive and optical are located in bay 16-23



Expansion slots

Up to 6 PCIe 3.0 slots: one vertical onboard PCIe slot, up to 5 PCIe slots via two optional riser cards.
Slot 1 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 2 (riser card 1): PCIe 3.0 x8, half length, full height, CPU1
Slot 3 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 4 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card and 2nd CPU
Slot 6 (onboard): PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU
Note: Although slot 5 connects to CPU1, slot 5 is supported on model with two processors and two riser cards only.

Core options for ThinkServer RD450 (partial)

4X70F28590 16GB DDR4-2133MHz (2Rx4) RDIMM
4XB0F28662 3.2TB ioMemory SX300 Performance PCIe 2.0 SSD by FusionIO
4XF0G45866 LTO-6 Linear Tape Drive Kit by Tandberg
4XB0G45757 Lenovo ThinkServer RD450 Raid 720ix AnyRAID Adapter with Expander
4XF0G45867 ThinkServer System Manager Premium
4X20F28576 750W Titanium Hot Swap Power Supply
4X90F92980 DisplayPort to VGA Dongle

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ThinkServer RD450 with 2.5" Disk Drive Bay - TopSeller - 70DE (December 2014) - II

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	SD module/ PCIe x8 SSD	Optical	Tape drive	Slots	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Power	Preloaded OS	Rack kit	Base wty
70DE000HUX	1xXeon E5-2609 v3 6C/ 1.9GHz/15MB/85W/1600MHz	4XG0F28859	1x4GB 2133MHz RDIMM	720ix +1GB RAM	24x2.5" HS	Open	No/No	None	None	No	No	TPM	No	TSM	750Wx1 Platinum	No	Slide	3-year
70DE000JUX	1xXeon E5-2620 v3 6C/ 2.4GHz/15MB/85W/1866MHz	4XG0F28858	1x8GB 2133MHz RDIMM	720ix +1GB RAM	24x2.5" HS	Open	No/No	None	None	2	No	TPM	No	TSM	750Wx1 Platinum	No	Slide	3-year
70DE000KUX	1xXeon E5-2640 v3 8C/ 2.6GHz/20MB/90W/1866MHz	4XG0F28856	1x8GB 2133MHz RDIMM	720ix +1GB RAM	24x2.5" HS	Open	No/No	None	None	2	No	TPM	No	TSM	750Wx1 Platinum	No	Slide	3-year

Components	Specification
Form factor	2U rack
Processor	Up to two **105W Intel Xeon E5-2600 v3** family processors with 12 cores up to 1.8 GHz, 10 cores up to 2.6 GHz, 8 cores up to 2.6 GHz, 6 cores up to 2.4 GHz, 4 cores up to 3 GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 30MB cache
Memory DIMMs	16 DIMM sockets. 4 channels per processor, 2 DIMMs per channel. **RDIMM** or **LRDIMM** (cannot be intermixed), DDR4, 2133MHz
Memory capacity	256GB (RDIMM, 16GB x 16)/512GB (LRDIMM, 32GB x 16), 2nd CPU is needed
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i/510i/720i/720ix for 8 x 2.5" model, 720ix for 16 or 24x 2.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 8 x 2.5" (Bay 0-7) disk drive bays, or up to 16 x 2.5" (Bay 0-15) disk drive bays, or up to 24 x 2.5" (Bay 0-23) disk drive bays (see right)
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	2.5" SATA (7.2K 6Gbs HDD) 500GB/1TB 2.5" SAS (10K 6Gbs HDD) 300GB/600GB/900GB/1.2TB 2.5" SAS (15K 6Gbs HDD) 146GB/300GB/450GB/600GB 2.5" SAS SSD (12Gbs) 200GB/400GB/800GB 2.5" SATA SSD (6Gbs) 120GB/240GB/300GB/480GB/600GB/800GB Tape drive 2.5TB PCIe 2.0 x8 SSD 1.6TB/3.2TB SDHC flash card 8GB/32GB *Note: 1. SAS drive needs SAS adapter. 2. SDHC flash card needs SDHC flash memory module.*
Optical drive	Optional one UltraSlim optical drive bay on 8 and 16 x 2.5" bays model, supports DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive. 8 x 2.5" model only. AnyRAID 720ix is needed
Network interfaces	One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
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Power supply	Up to two redundant hot-swap 450 W ac or 550 W ac or 750 W ac or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified, 450 W is 80 PLUS Gold qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 450 W is supported on 8 x 2.5" models only

Components	Specification
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Windows Server Storage 2012 R2 and 2012, Windows Multipoint Server 2012. Red Hat Enterprise Linux 7.0 and 6.5. SUSE Linux Enterprise Server 11 SP3. VMware vSphere (ESXi) 5.1 P5 and 5.5 U2
Rack kit	Optional slide or static rack kit on selected model
Base warranty	1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units
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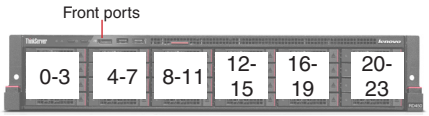
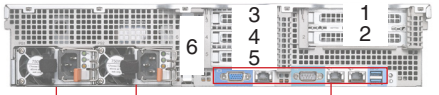
Hot-swap parts	Disk drives, power supplies
Noise emissions	Operating: < 6.5 Bels, Idle: < 5.6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 70 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 27 kg (59.52 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Tape drive and optical are located in bay 16-23



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4X90F92980 DisplayPort to VGA Dongle

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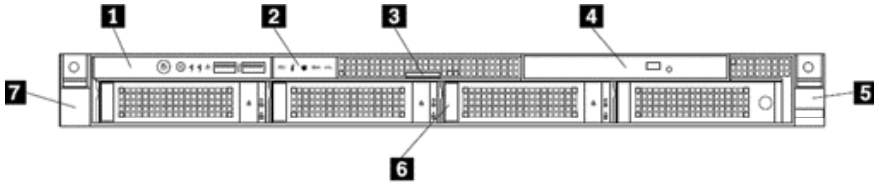
ThinkServer RD340 Overview

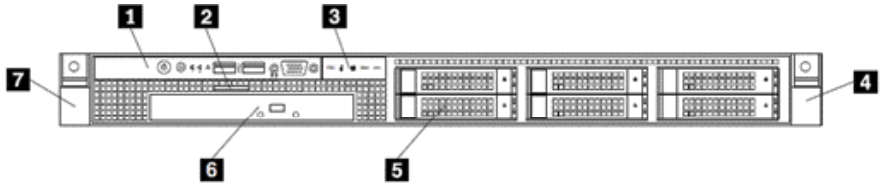
Front view - ThinkServer RD340 supports the following disk bay configurations:

ThinkServer RD340 with 4 x 3.5" Disk Drive Bays



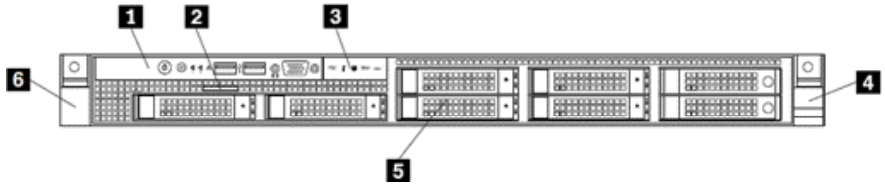
1. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
2. Intelligent Diagnostics Module (IDM basic only, optional)
3. Pull-out information card
4. Slim optical drive (optional)
5. Rack handle (right)
6. 4 x 3.5" hot-swap disk drive bays
7. Rack handle (left)

ThinkServer RD340 with 6 x 2.5" Disk Drive Bays



1. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
2. Pull-out information card
3. Intelligent Diagnostics Module (IDM basic only, optional)
4. Rack handle (right)
5. 6 x 2.5" hot-swap disk drive bays
6. Slim optical drive (optional)
7. Rack handle (left)

ThinkServer RD340 with 8 x 2.5" Disk Drive Bays



1. Front panel
   - Power Button with LED
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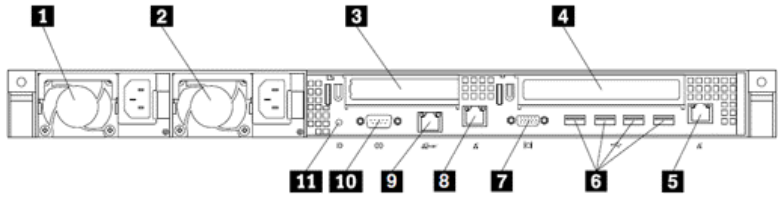
   - System error LED
   - 2 USB 2.0
   - 1 VGA
2. Pull-out information card
3. Intelligent Diagnostics Module (IDM basic only, optional)
4. Rack handle (right)
5. 8 x 2.5" hot-swap disk drive bays
6. Rack handle (left)

Rear view



1. Hot-swap redundant power supply 2 (optional)
2. Hot-swap redundant power supply 1
3. Low profile PCI Express slot by riser card 2
4. PCI Express slot by riser card 1
5. Ethernet 2 (RJ-45)
6. Four USB 2.0
7. VGA DB-15 connector
8. Ethernet 1 (RJ-45)
9. Dedicate/share management connector (RJ-45)
10. Serial
11. ID LED

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ThinkServer RD340 (70AB) - TopSeller - January 2014 - I

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AB0004US	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	2nd	8GBx12 1600MHz LVRDIMM	4X3.5" HS	RAID710 +CacheVault +CacheCade	2x400GB SSD(RAID1,cache) +2x500GB 3.5" SATA(RAID0)	DVD±RW	350T2	No	iKVM	Cable	1	TPM	2012 Standard	3
70AB0005UX	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0006UX	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	4GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0008UX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	4GBx2 1600MHz LVRDIMM	4X3.5" HS	RAID300 +upgrade	Open	DVD±RW	No	No	iKVM	No	1	TPM	No	3
70AB0009UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	4GBx4 1600MHz LVRDIMM	4X3.5" HS	RAID700 +Battery	Open	DVD±RW	No	No	iKVM	No	1	TPM	No	3
70AB001TUX	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB001UUX	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

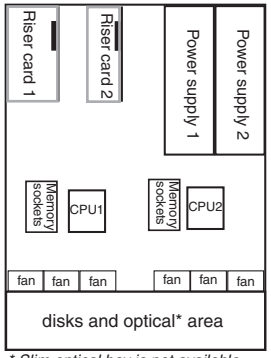
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support* ** RAID 50, 60 are supported on 8 x 2.5" disk bay models only*	See RAID table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

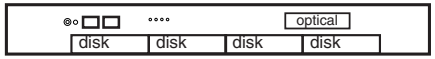
Top



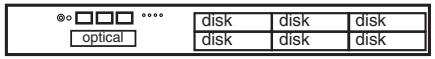
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

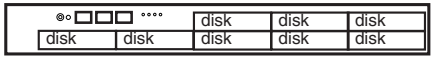
4 x 3.5"



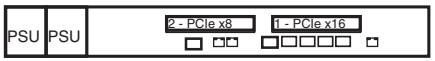
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8**
***x4 elec for single processor model, x8 elec for dual processors model*

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models), 2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

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ThinkServer RD340 (70AB) - TopSeller - January 2014 - II

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AB001VUX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB001WUX	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB001XUX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB001YUX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0020UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID300	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0021UX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID500	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0022UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID500	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

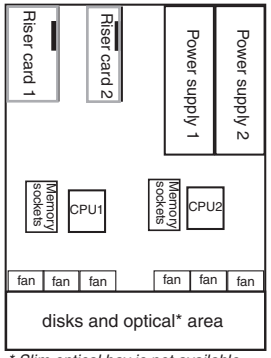
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support* ** RAID 50, 60 are supported on 8 x 2.5" disk bay models only*	See RAID table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

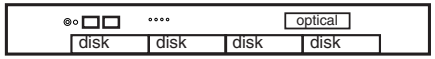
Top



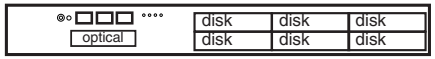
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

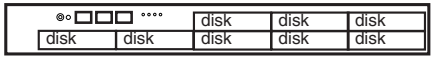
4 x 3.5"



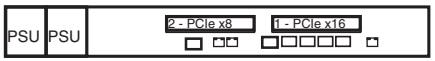
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8**
***x4 elec for single processor model, x8 elec for dual processors model*

Front/rear Ports:

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Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

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ThinkServer RD340 (70AB) - TopSeller - January 2014 - III

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AB0023UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID500	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0024UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID700	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0025UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID700	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0026UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID710	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0027UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID710	Open	DVD±RW	No	No	IPMI	No	1	TPM	No	3
70AB0028UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID710	Open	DVD±RW	No	No	iKVM	No	1	TPM	No	3
70AB0029UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	4X3.5" HS	RAID710	Open	DVD±RW	No	No	iKVM	No	1	TPM	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

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Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
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RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
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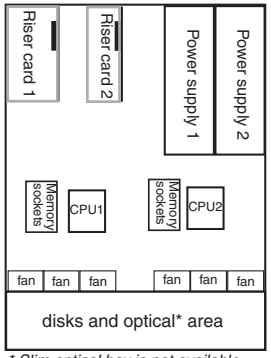
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

Top



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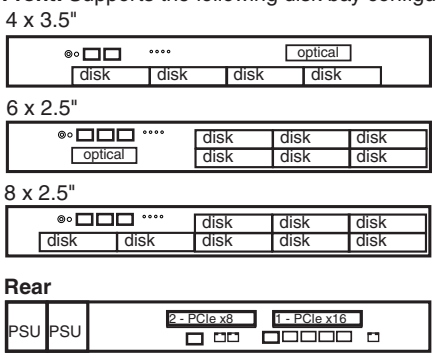

Rear

Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8**

***x4 elec for single processor model, x8 elec for dual processors model*

Front/rear Ports:

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Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer RD340 (70AB) - TopSeller - January 2014 - IV

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AB002AUX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	2nd	8GBx8 1600MHz LVRDIMM	4X3.5" HS	RAID300 +upgrade	4x1TB 3.5" SATA	DVD±RW	350T2	No	iKVM	No	1	TPM	No	3
70AB002BUX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	2nd	16GBx8 1600MHz LVRDIMM	4X3.5" HS	RAID500 +upgrade	4x1TB 3.5" SAS	DVD±RW	350T4	No	iKVM	No	1	TPM	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

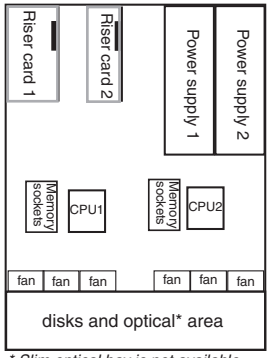
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support* ** RAID 50, 60 are supported on 8 x 2.5" disk bay models only*	See RAID support table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

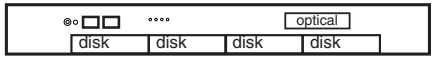
Top



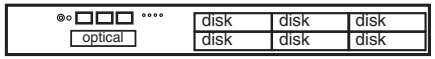
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

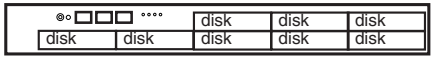
4 x 3.5"



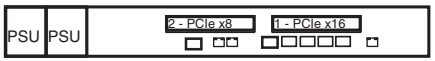
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8**

***x4 elec for single processor model, x8 elec for dual processors model*

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models), 2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

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ThinkServer RD340 (70AC) - TopSeller - January 2014

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AC0000US	Xeon E5-2430L v2 6C/2.4GHz/15MB/1600MHz	2nd	16GBx12 1600MHz LVRDIMM	6X2.5" HS	RAID710 +CacheVault +FastPath	4x400GB SSD(RAID6) +2x400GB SSD(RAID0)	DVD±RW	350T2	No	iKVM	Cable	1	TPM	2012 Standard	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

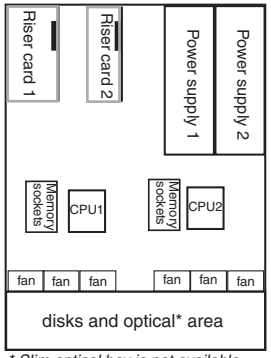
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support* ** RAID 50, 60 are supported on 8 x 2.5" disk bay models only*	See RAID support table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

Top



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Front: Supports the following disk bay configurations:

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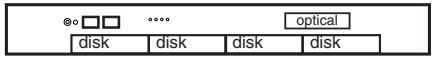

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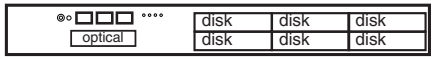

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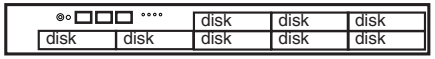

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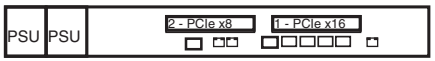

Expansion Slots:

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ThinkServer RD340 (70AD) - TopSeller - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AD0000US	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	2nd	16GBx12 1600MHz LVRDIMM	8X2.5" HS	RAID500 +upgrade	8x900GB 2.5" SAS(RAID50)	N/A	X540T2	No	iKVM	Cable	1	TPM	2012 Standard	3

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Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
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RAID support* ** RAID 50, 60 are supported on 8 x 2.5" disk bay models only*	See RAID table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

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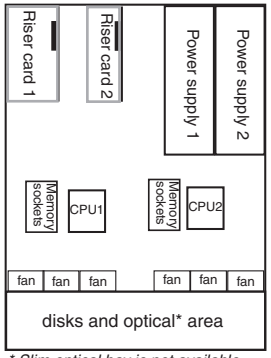

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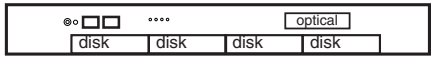

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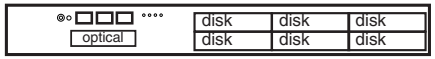

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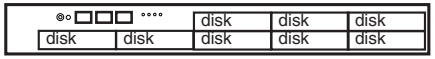
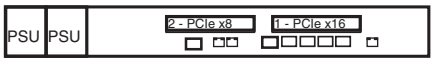


Rear



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See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer RD340 (70A9) - January 2014

Product Specifications Reference (PSREF)

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70A90001UX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	2nd	8GBx8 1600MHz LVRDIMM	6X2.5 HS	RAID700	6x1TB 2.5 SATA	DVD±RW	350T2	No	iKVM	No	1	TPM	No	3
70A90002UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	2nd	8GBx8 1600MHz LVRDIMM	6X2.5 HS	RAID700 +Battery	6x300GB 2.5 SAS	DVD±RW	350T2	No	iKVM	No	1	TPM	No	3

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RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

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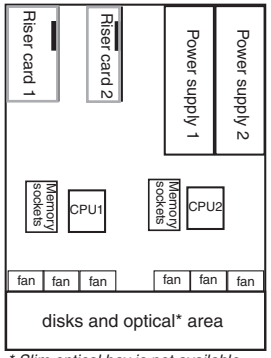

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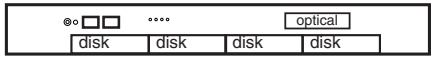

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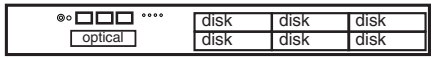

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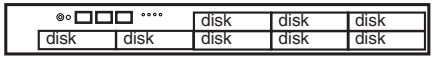

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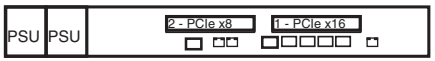

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See footnotes for more detailed information
Model(s) announced January 21, 2014

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ThinkServer RD340 (70AA) - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AA0000US	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	2nd	16GBx12 1600MHz LVRDIMM	8X2.5 HS	RAID700	4x300GB 2.5" SAS(RAID6) +4x400GB SSD(RAID5)	N/A	X520SR2	No	iKVM	Cable	1	TPM	2012 Standard	3
70AA0001UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	2nd	16GBx8 1600MHz LVRDIMM	8X2.5 HS	RAID710 +CacheVault	6x600GB 2.5 SAS	N/A	X540T2	No	iKVM	No	1	TPM	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

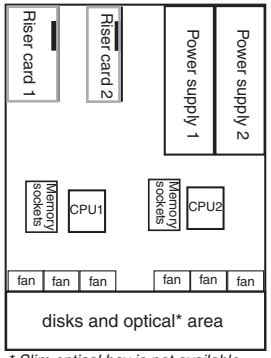
- ***For detailed platform specifications, please see ThinkServer RD340 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD340 Optional Configurations sheets***

Mechanical	• 1U rack with rail kit • 19" W x 28.9" D x 1.72" H (with rack handles) • 482.4mm W x 734mm D x 43.6mm H (with rack handles) • 17kg (37.5 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support* ** RAID 50, 60 are supported on 8 x 2.5" disk bay models only*	See RAID support table below
Optical drive (optional)	4 x 3.5"/6 x 2.5" : one slim optical bay, supports one optional slim optical 8 x 2.5": none optical bay, optional external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic, IDM basic LED lights indicate failing component category
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	6 fans, non-hot swap, 5 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300 (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

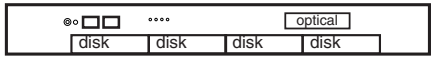
Top



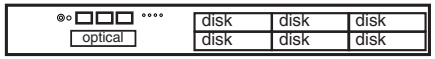
** Slim optical bay is not available on 8 x 2.5" models*

Front: Supports the following disk bay configurations:

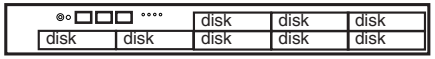
4 x 3.5"



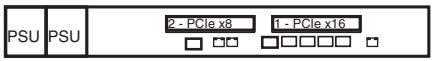
6 x 2.5"



8 x 2.5"



Rear



Expansion Slots:

Riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCIe 3.0 x16
Slot 2: Low Profile, PCIe 3.0 x8**
***x4 elec for single processor model, x8 elec for dual processors model*

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models), 2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

See footnotes for more detailed information
Model(s) announced January 21, 2014

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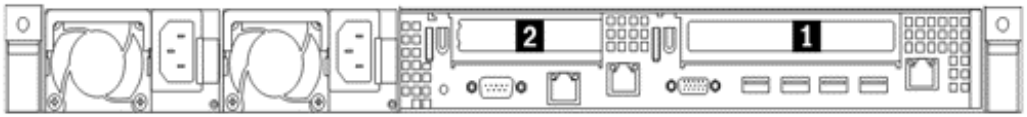
ThinkServer RD340 Platform Systems Specifications - I of II

<table>
<tr><th>Components</th><th>Specifications</th></tr>
<tr><td>Mechanical</td><td>• 1U rack with rail kit
• 19" W x 28.9" D x 1.72" H (with rack handles)
• 482.4mm W x 734mm D x 43.6mm H (with rack handles)
• 17kg (37.5 lb) when fully configured</td></tr>
<tr><td>Chipset</td><td>Intel C606 Chipset</td></tr>
<tr><td>Processors</td><td>Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 or Xeon E5-2400 v2 families,
up to 8 cores (E5-2400 series)/10 cores (E5-2400 v2 series), one QPI links up to 8.0GT/s,
up to 20MB (E5-2400 series)/25MB (E5-2400 v2 series) cache,
integrated 3-channel DDR3 memory controller up to 1600MHz</td></tr>
<tr><td>Memory type</td><td>1600MHz, LV RDIMM*, DDR3, 3-channel per processor, 240-pin
* By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting</td></tr>
<tr><td>Memory DIMMs</td><td>Twelve DIMM sockets, six DIMM sockets per processor</td></tr>
<tr><td>Memory protection</td><td>ECC, memory mirroring, memory sparing</td></tr>
<tr><td>Disk bays configurations</td><td>Supports one of the following configurations
• 4 x 3.5" disk bays + 1 x slim optical bay
• 6 x 2.5" disk bays + 1 x slim optical bay
• 8 x 2.5" disk bays</td></tr>
<tr><td>RAID support*
* RAID 50, 60 are supported on 8 x 2.5" disk bay models only</td><td>
<table>
<tr><th>RAID adapter</th><th>RAID support**</th><th>Cache</th><th>Transfer rates</th><th>Optional upgrades</th></tr>
<tr><td>RAID 300 (onboard)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 500 (LSI 9240-8i)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5, 50 support</td></tr>
<tr><td>RAID 700 (LSI 9260-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>512MB</td><td>6Gb/s</td><td>optional intelligent Battery Backup Unit (iBBU08)</td></tr>
<tr><td>RAID 710 (LSI 9270CV-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>1GB</td><td>6Gb/s</td><td>• optional CacheVault (CV) flash cache with super capacitor
• optional CacheCade Pro 2.0
• optional FastPath key</td></tr>
</table>
</td></tr>
<tr><td>Optical drive (optional)</td><td>4 x 3.5"/6 x 2.5" models: one slim optical bay, supports one optional slim optical
8 x 2.5" models: none optical bay, optional external USB optical is needed</td></tr>
<tr><td>Onboard network</td><td>Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management</td></tr>
<tr><td>Front ports</td><td>One analog VGA DB-15 connector (for 6 x 2.5"/8 x 2.5" models), two USB 2.0</td></tr>
<tr><td>Rear ports</td><td>Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td> 

Two PCI-Express slots via two riser cards, riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8 (x4 elec for single processor model, x8 elec for dual processors model)</td></tr>
<tr><td>Graphics</td><td>Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz</td></tr>
<tr><td>Intelligent Diagnostics Module (optional)</td><td>Supports optional Intelligent Diagnostics Module (IDM) basic,
IDM basic LED lights indicate failing component category</td></tr>
<tr><td>Systems management (iKVM is optional)</td><td>• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions
• Front control panel LEDs shows the status of power, ID, network, system
• Lenovo SmartGrid Manager
• ThinkServer EasyStartup/EasyManage/EasyUpdate</td></tr>
<tr><td>Cooling fans</td><td>6 fans, non-hot swap, 5 + 1 redundant</td></tr>
<tr><td>Cable mgmt (opt)</td><td>Optional cable management arm on selected models</td></tr>
</table>

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ThinkServer RD340 Platform Systems Specifications - II of II

Components	Specifications	
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies	
Hot-swap parts	Disk drives, power supplies, and cooling fans	
Security features (TPM is optional)	Power-on password/administrator password/Trusted Platform Module (TCG 1.2-compliant)	
Safety, environment, and certifications	Environmental certifications	• **Energy Star Server 2.0** qualified • RoHS-compliant
	EMC	FCC Class A, CSA, CE
	240VA	Supports
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (no package)	-10 °C to 60 °C
	Temperature - non operating (with package)	-40 °C to 70 °C
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	8%~80%, non-condensing
	Humidity - non operating (no package)	8%~80%, non-condensing
	Humidity - non operating (with package)	8%~90%, non-condensing
	Acoustic noise (idle/working mode)	

Category	System Configuration	
	Entry level	High-end
CPU	1	2
Memory	4GB x 1	4GB x 12
Optical Drive	Slim optical	Slim optical
Drive Bays	4 x 3.5"	6 x 2.5"
RAID	RAID500	RAID500
HDD	2 x 500GB 3.5" SATA	6 x 300GB 2.5" SAS
PSU	550Wx1	550Wx2
Sound Pressure (operating)	45.28 dB(A)	44.74 dB(A)
Sound Pressure (idle)	45.28 dB(A)	44.95 dB(A)

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ThinkServer RD340 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2400 v2 Series									
Xeon E5-2440 v2	8	16	1.9 GHz	2.4 GHz	20MB	7.2 GT/s	95W	DDR3-1600	0C19539
Xeon E5-2450 v2	8	16	2.5 GHz	3.3 GHz	20MB	8 GT/s	95W	DDR3-1600	0C19538
Xeon E5-2450L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	60W	DDR3-1600	0C19544
Xeon E5-2470 v2	10	20	2.4 GHz	3.2 GHz	25MB	8 GT/s	95W	DDR3-1600	0C19537
Xeon E5-2407 v2	4	4	2.4 GHz	2.4 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19542
Xeon E5-2420 v2	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19541
Xeon E5-2430 v2	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19540
Xeon E5-2430L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60W	DDR3-1600	0C19545
Xeon E5-2403 v2	4	4	1.8 GHz	1.8 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19543
Intel Xeon E5-2400 Series									
Xeon E5-2450L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89450
Xeon E5-2450	8	16	2.1 GHz	2.9 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89444
Xeon E5-2440	6	12	2.4 GHz	2.9 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89445
Xeon E5-2430L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89451
Xeon E5-2407	4	4	2.2 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89448
Xeon E5-2403	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89449
Xeon E5-2430	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89446
Xeon E5-2420	6	12	1.9 GHz	2.4 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89447
Xeon E5-2470	8	16	2.3 GHz	3.1 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89443

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice.
The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

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ThinkServer RD340 Optional Configurations - Storage and RAID

Disk drive options for 3.5" disk bay models (8 x 3.5"/12 x 3.5")

Hot-swap disk drive options for 3.5" bay	Part Number
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	4XB0F28644
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573

Disk drive options for 2.5" disk bay models (8 x 2.5"/16 x 2.5")

Hot-swap disk drive options for 2.5" bay	Part Number
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 300 Upgrade Key for Advanced RAID	0A89422
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID Super Capacitor Module	0C19490
ThinkServer RAID FastPath Software Key	0C19491
ThinkServer RAID CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD340 Optional Configurations - Network, System Management, Power Supply

Network and HBA options	Network and HBA options	Part Number
	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
	ThinkServer QLE2562 Dual Port 8Gb Fibre Channel HBA by Qlogic	0C19482
Security options	Trusted Platform Module options	Part Number
	ThinkServer Trusted Platform Module	0A89428
Systems management options	System Management option for iKVM	Part Number
	ThinkServer Management Module Premium	67Y2624
	Cable Management option	Part Number
	ThinkServer Cable management Arm	0A89476
Power supply options	Power supply option	Part Number
	ThinkServer 550W Gold Hot Swap Redundant Power Supply	4X20E54689

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ThinkServer RD340 Operating System and Virtualization Supportability Matrix

List of operating system and virtualization software supported on ThinkServer RD340

Operating System/Virtualization	Certified	Support ROK	Supports EasyStartup	Preloaded
Windows Server 2008 x86 Edition				
Windows Server 2008 Standard Edition (x86)			•	
Windows Server 2008 Enterprise Edition (x86)			•	
Windows Server 2008 Datacenter Edition (x86)			•	
Windows Server 2008 x64 Edition				
Windows Server 2008 Standard Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Enterprise Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Datacenter Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 R2 (x64) with SP1				
Windows Server 2008 Standard Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Enterprise Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Datacenter Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Small Business Server 2011				
Windows Small Business Server 2011 Essentials	•		•	
Windows Small Business Server 2011 Standard	•	•	•	
Windows Small Business Server Premium Add-On (including Hyper-V)	•	•	•	
Windows Server 2012				
Windows Server 2012 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 Essentials	•	•	•	•
Windows Server 2012 Hyper-V	•		•	
Windows Server 2012 R2				
Windows Server 2012 R2 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Essentials	•	•	•	•
Windows Server 2012 R2 Hyper-V	•		•	
SUSE Linux Enterprise Server x86				
SUSE Linux Enterprise Server 10 sp4			•	
SUSE Linux Enterprise Server 11 sp2	•		•	
SUSE Linux Enterprise Server 11 sp3	•		•	
SUSE Linux Enterprise Server x64				
SUSE Linux Enterprise Server 10 sp4			•	
SUSE Linux Enterprise Server 11 sp2	•		•	
RedHat Enterprise Linux Server (RHEL) x86				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
RedHat Enterprise Linux Server x64				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
Vmware x64				
Vmware ESXi 5.1 U1	•		•	•
Vmware ESXi 5.5	•	•	•	•
Microsoft Hyper V				
Microsoft Hyper-V server 2008	•		•	
Microsoft Hyper-v server 2008 R2 SP1	•		•	
Citrix				
Citrix XenServer 6.1	•		•	
Citrix XenServer 6.0.2	•		•	

Note:

- *For more information on ThinkServer operating system and virtualization software, please visit ThinkServer Software page: http://shop.lenovo.com/us/en/servers/thinkserver/server-software.html*
- *For ThinkServer operating system and virtualization software options, please visit ThinkServer OS and virtualization Options document: http://www.lenovo.com/images/products/server/pdfs/datasheets/ThinkServer_OS_&_Virtualization_Options_Datasheet.pdf*

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ThinkServer RD340 Services Upgrade Options

Partial list of Lenovo Services for ThinkServer RD340 models with 3-year onsite base warranty
For more information see: **http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html**

Upgrade Service Description	Part Number
Warranty	
3YR Onsite 24x7x4 Hour Response	5WS0F15458
3YR Onsite 24x7x8 Hour Response	5WS0F15392
3YR Onsite 9x5x4 Hour Response	5WS0F15355
4YR Onsite 24x7x4 Hour Response	5WS0F15443
4YR Onsite 24x7x8 Hour Response	5WS0F15395
4YR Onsite 9x5x4 Hour Response	5WS0F15394
4YR Onsite NBD	5WS0F15415
5YR Onsite 24x7x4 Hour Response	5WS0F15377
5YR Onsite 24x7x8 Hour Response	5WS0F15440
5YR Onsite 9x5x4 Hour Response	5WS0F15430
5YR Onsite NBD	5WS0F15419
Keep Your Drive (KYD) Service	
3YR Keep Your Drive	5PS0F15436
3YR Onsite 24x7x4 Hour Response + KYD	5PS0F15376
3YR Onsite 24x7x8 Hour Response + KYD	5PS0F15349
3YR Onsite 9x5x4 Hour Response + KYD	5PS0F15448
4YR Onsite 24x7x4 Hour Response + KYD	5PS0F15389
4YR Onsite 24x7x8 Hour Response + KYD	5PS0F15359
4YR Onsite 9x5x4 Hour Response + KYD	5PS0F15456
4YR Onsite NBD + KYD	5PS0F15459
5YR Onsite 24x7x4 Hour Response + KYD	5PS0F15402
5YR Onsite 24x7x8 Hour Response + KYD	5PS0F15381
5YR Onsite 9x5x4 Hour Response + KYD	5PS0F15366
5YR Onsite NBD + KYD	5PS0F15391
Priority Technical Support	
3YR KYD + Priority Support	5PS0F15417
3YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15352
3YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15399
3YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15444
3YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15418
3YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15398
3YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15468
3YR Priority Support	5WS0E76471
4YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15462
4YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15410
4YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15433
4YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15425
4YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15400
4YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15351
4YR Onsite NBD + KYD + Priority Support	5PS0F15373
4YR Onsite NBD + Priority Support	5WS0F15401
4YR Priority Support	5WS0E77170
5YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15350
5YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15412
5YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15471
5YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15447
5YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15437
5YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15382
5YR Onsite NBD + KYD + Priority Support	5PS0F15388
5YR Onsite NBD + Priority Support	5WS0F15463
5YR Priority Support	5WS0E77173

Upgrade Service Description	Part Number
Post Warranty	
1YR Onsite 24x7x4 Hour Response	5WS0F15435
1YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15370
1YR Onsite 24x7x8 Hour Response	5WS0F15427
1YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15361
1YR Onsite 9x5x4 Hour Response	5WS0F15416
1YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15348
1YR Onsite NBD	5WS0F15407
1YR Onsite NBD + Priority Support	5WS0F15465
TopSeller Priority (TopSeller models only)	
3YR Onsite 24x7x4 Hour Response	5WS0D73789
3YR Onsite 9x5x4 Hour Response	5WS0D73787
4YR Onsite 24x7x4 Hour Response	5WS0D73792
4YR Onsite 9x5x4 Hour Response	5WS0D73791
4YR Onsite NBD	5WS0F15470
3YR Onsite 24x7x4 Hour Response+Priority Support	5WS0F15414
3YR Onsite 9x5x4 Hour Response+Priority Support	5WS0F15423
3YR Priority Support	5WS0E76457
4YR Priority Support	5WS0E76482

Note:

24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window *(requires Location Activation)*

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
- Best coverage for business critical work loads

9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window *(requires Location Activation)*

- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.

24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window *(requires Location Activation)*

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.

Priority Technical Support

Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.

Keep Your Drive (KYD) Service

Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.
To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html
Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

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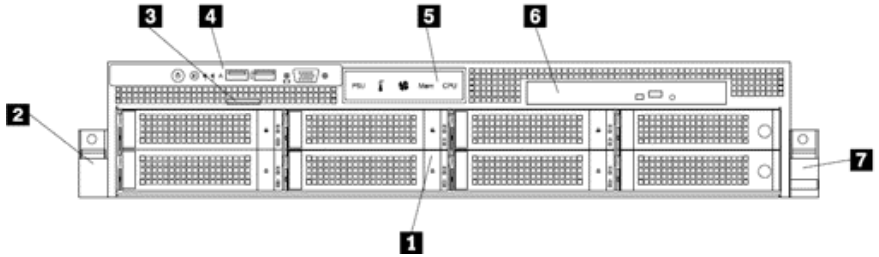
ThinkServer RD440 Overview

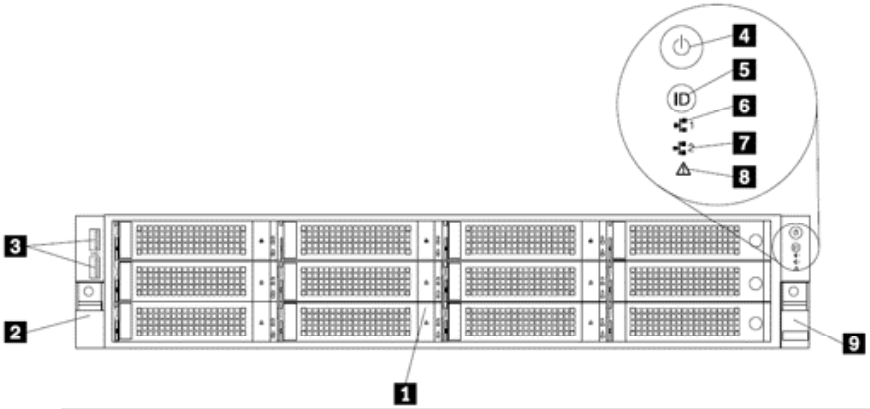
Front view - ThinkServer RD440 supports the following disk bay configurations:

ThinkServer RD440 with 8 x 3.5" Disk Drive Bays



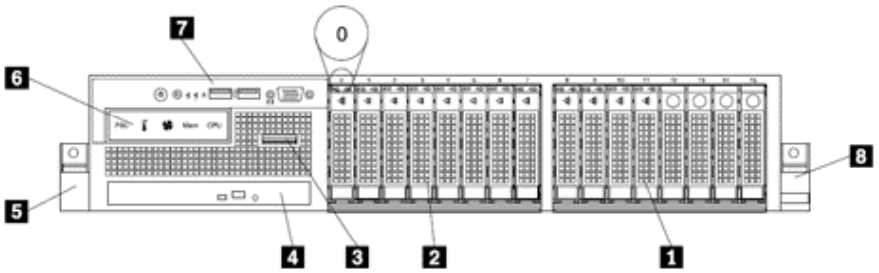
1. 8 x 3.5" hot-swap disk drive bays
2. Rack handle (left)
3. Pull-out information card
4. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
5. Intelligent Diagnostics Module (optional)
6. Slim optical drive (optional)
7. Rack handle (right)

ThinkServer RD440 with 12 x 3.5" Disk Drive Bays



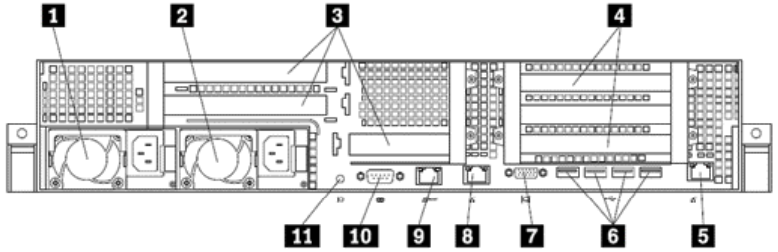
1. 12 x 3.5" hot-swap disk drive bays
2. Rack handle (left)
3. 2 USB 2.0
4. Power Button with LED
5. ID button with LED
6. Network interface status LED 1
7. Network interface status LED 2
8. System error LED
9. Rack handle (right)

ThinkServer RD440 with 2.5" Disk Drive Bays



1. 8 x hot-swap disk drive bays (for 16x2.5" hard drive bays model)
2. 8 x Hot-swap disk drive bays
3. Pull-out information card
4. Slim optical drive (optional)
5. Rack handle (left)
6. Intelligent Diagnostics Module (basic or premium, optional)
7. Front panel
   - Power Button with LED
   - ID button with LED
   - 2 Network interface status LEDs
   - System error LED
   - 2 USB 2.0
   - 1 VGA
8. Rack handle (right)

Rear view



1. Hot-swap redundant power supply 2 (optional)
2. Hot-swap redundant power supply 1
3. Three PCI Express slots by riser card 2
4. Two PCI Express slots by riser card 1
5. Ethernet 2 (RJ-45)
6. Four USB 2.0
7. VGA DB-15 connector
8. Ethernet 1 (RJ-45)
9. Dedicate/share management connector (RJ-45)
10. Serial
11. ID LED

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ThinkServer RD440 (70AH) - TopSeller - January 2014 - I

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AH001QUX	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001RUX	Xeon E5-2407 v2 4C/2.4GHz/10MB/1333MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001SUX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001TUX	Xeon E5-2430 v2 6C/2.5GHz/15MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001UUX	Xeon E5-2440 v2 8C/1.9GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001VUX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001WUX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID300	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

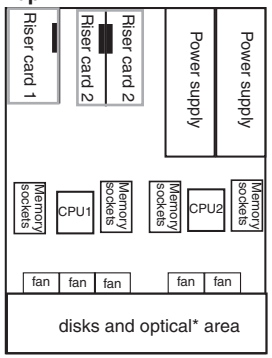
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	(see table below)
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

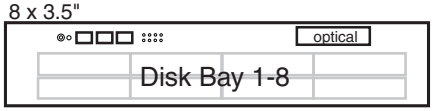
Top



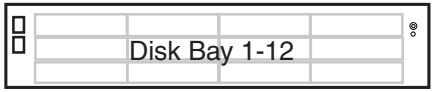
** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

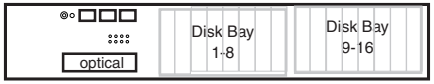
8 x 3.5"



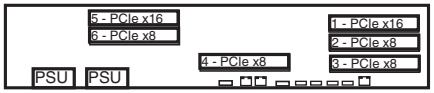
12 x 3.5"



8 x 2.5"/16 x 2.5" *(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

Up to six PCI-Express slots via two riser cards,
riser card 1 for slot 1-3, riser card 2 for slot 4-6:
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

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ThinkServer RD440 (70AH) - TopSeller - January 2014 - II

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AH001XUX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID700	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH001YUX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID700	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH0020UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID710	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH0021UX	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	No	8GBx1 1600MHz LVRDIMM	8X3.5" HS	RAID710	Open	DVD±RW	No	IDM Premium	IPMI	No	1	TPM	No	3
70AH0022UX	Xeon E5-2420 v2 6C/2.2GHz/15MB/1600MHz	2nd	8GBx8 1600MHz LVRDIMM	8X3.5" HS	RAID700	8x2TB 3.5" SAS	DVD±RW	350T2	IDM Premium	iKVM	No	1	TPM	No	3
70AH0023UX	Xeon E5-2450 v2 8C/2.5GHz/20MB/1600MHz	2nd	16GBx8 1600MHz LVRDIMM	8X3.5" HS	RAID710 +CacheVault	6x4TB 3.5" SATA	DVD±RW	350T4	IDM Premium	iKVM	No	1	TPM	No	3

1. *Model in italics is Global model* 2. *By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting*

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

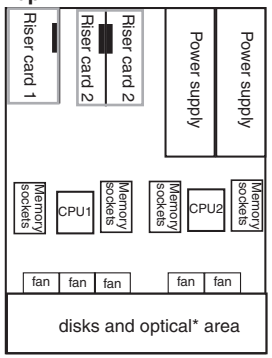
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	(see table below)
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

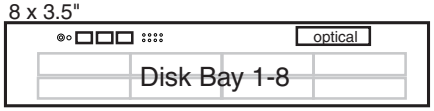
Top



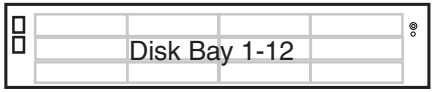
** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

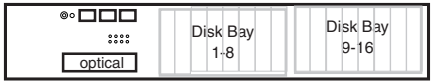
8 x 3.5"



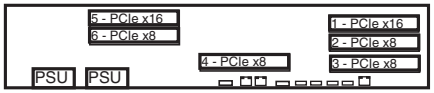
12 x 3.5"



8 x 2.5"/16 x 2.5" *(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6:
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

See footnotes for more detailed information
Model(s) announced Januray 21, 2014

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ThinkServer RD440 (70AE) - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AE0000US	Xeon E5-2403 v2 4C/1.8GHz/10MB/1333MHz	2nd	16GBx12 1600MHz LVRDIMM	8X3.5" HS	RAID700	8x500GB 3.5" SATA(RAID60)	DVD±RW	X520DA2 +X540T2	IDM Premium	iKVM	Cable	1	TPM	2012 Standard	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

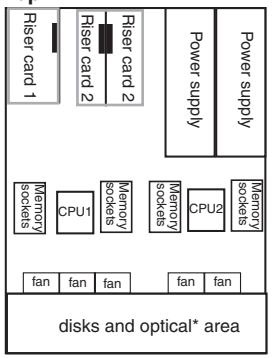
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See RAID table below
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

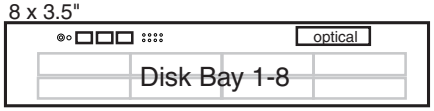
Top



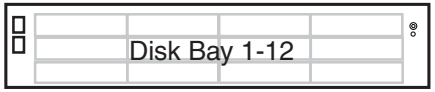
** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

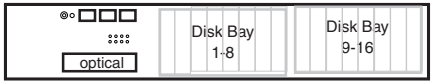
8 x 3.5"



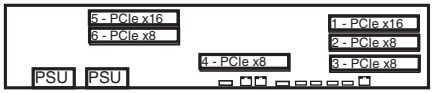
12 x 3.5"



8 x 2.5"/16 x 2.5"*(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

Up to six PCI-Express slots via two riser cards,
riser card 1 for slot 1-3, riser card 2 for slot 4-6:
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

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ThinkServer RD440 (70AF) - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AF0000US	Xeon E5-2470 v2 10C/2.4GHz/25MB/1600MHz	2nd	16GBx6 1600MHz LVRDIMM	12X3.5" HS	RAID700	6x500GB 3.5" SATA(RAID60) +6x1TB 3.5" SATA(RAID10)	N/A	X520DA2	N/A	iKVM	Cable	1	TPM	2012 Standard	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

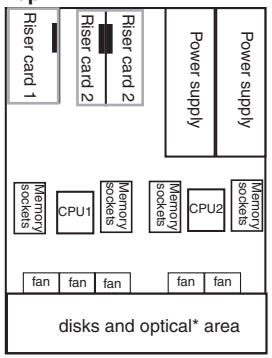
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See table below
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

Top



** Slim optical bay is not available on 12 x 3.5" models*

Front: Supports the following disk bay configurations:

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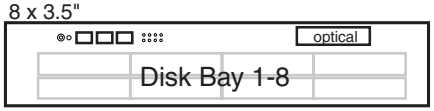
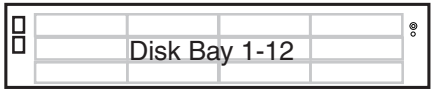
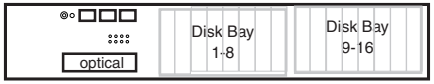


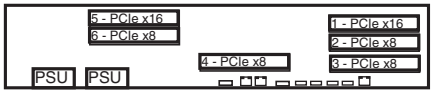
12 x 3.5"



8 x 2.5"/16 x 2.5"*(Bay 9-16 are available on 16 x 2.5" models)*



Rear



Expansion Slots:

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Slot 5-6 are available on dual processors models:
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Slot 6: half-length, full-height, PCIe 3.0 x8

Front/rear Ports:

Front: 1 VGA (for 6 x 2.5"/8 x 2.5" models),
2 USB 2.0
Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

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ThinkServer RD440 (70AG) - January 2014

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70AG0000US	E5-2440 6C/2.4GHz/15MB/1333MHz	2nd	8GBx6+16GBx6 1600MHz LVRDIMM	8X2.5" HS	RAID500	8x600GB 2.5" SAS(RAID50)	DVD±RW	X540T2 +X520DA2	IDM Premium	iKVM	Cable	1	TPM	2012 Standard	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

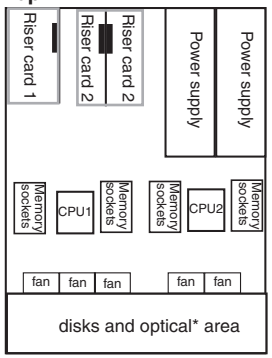
Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
Chipset	Intel C606 Chipset, two LGA1356 sockets for processors
Memory DIMMs	Twelve DIMM sockets, six DIMM sockets per processor
Memory protection	ECC, memory mirroring, memory sparing
RAID support	See table below
Optical drive (optional)	8 x 3.5"/8 x 2.5"/16 x 2.5": one slim optical bay, supports one slim optical 12 x 3.5" : none optical bay, external USB optical is needed
Onboard network	Two Gigabit Ethernet ports by Intel i350, one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	Supports the following Intel Server Adapter options on selected models: 1Gbps: 350-T2/I350-T4 10Gbps: X520-SR2/X520-DA2/X540-T2/Fiber Module for X520-DA2
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cooling fans	5 fans, hot swap, 4 + 1 redundant

RAID adapter	RAID support	Cache	Transfer rates	Optional upgrades
RAID 300* (onboard)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5 support
RAID 500 (LSI 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

Top



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Front: Supports the following disk bay configurations:

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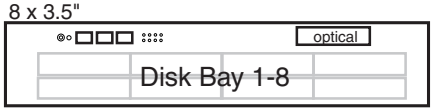
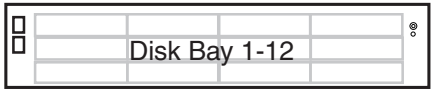
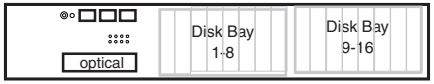


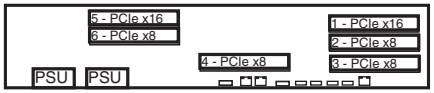
12 x 3.5"



8 x 2.5"/16 x 2.5"*(Bay 9-16 are available on 16 x 2.5" models)*



Rear



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ThinkServer RD440 (70B2) - January 2014

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor	2nd CPU	Memory	Disk Bays	RAID controller	Storage	Slim optical	Discrete ethernet	Intelligent Diagnostics	Remote mgmt	Cable mgmt	PSU qty	TPM module	Preloaded OS	Base warranty (-year, on-site)
70B20000US	Xeon E5-2450L v2 10C/1.7GHz/25MB/1600MHz	2nd	4GBx6+16GBx6 1600MHz LVRDIMM	16X2.5" HS	RAID700 +Battery	12x900GB 2.5" SAS(RAID10) +4x1TB 2.5" SATA(RAID1)	DVD±RW	X520DA2	IDM Premium	iKVM	Cable	1	TPM	2012 Standard	3

1. Model in italics is Global model 2. By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting

- ***For detailed platform specifications, please see ThinkServer RD440 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD340, please see ThinkServer RD440 Optional Configurations sheets***

Mechanical	• 2U rack with rail kit • 19" W x 28.9" D x 3.45" H (with rack handles) • 482.4mm W x 734mm D x 87.6mm H (with rack handles) • 26.5 kg (58.42 lb) when fully configured
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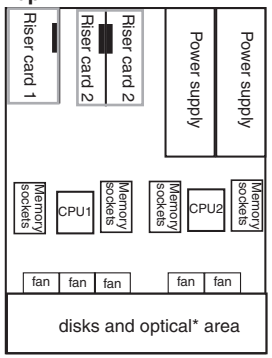
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade Pro 2.0 • optional FastPath key

***RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only*

Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Security features (TPM is optional)	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) on selected models
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant

Top



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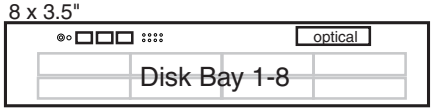

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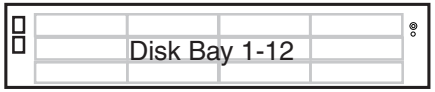
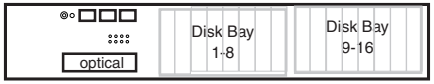


8 x 2.5"/16 x 2.5"*(Bay 9-16 are available on 16 x 2.5" models)*



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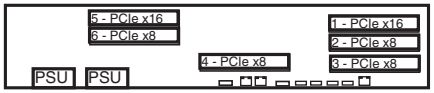

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Rear: 4 USB 2.0, 1 serial (9-pin),
2 ethernet (RJ-45),
1 RJ-45 (dedicate/share mgmt),
1 VGA

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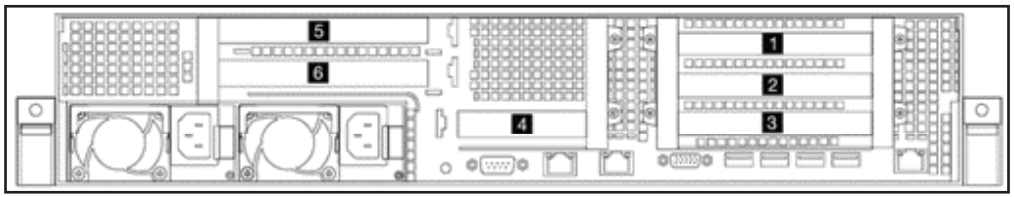
ThinkServer RD440 Platform Systems Specifications - I of II

<table>
<tr><th>Components</th><th>Specifications</th></tr>
<tr><td>Mechanical</td><td>• 2U rack with rail kit
• 19" W x 28.9" D x 3.45" H (with rack handles)
• 482.4mm W x 734mm D x 87.6mm H (with rack handles)
• 28 kg (61.73 lb) when fully configured</td></tr>
<tr><td>Chipset</td><td>Intel C606 Chipset</td></tr>
<tr><td>Processors</td><td>Two LGA1356 sockets, supports up to two processors from Intel Xeon E5-2400 or Xeon E5-2400 v2 families,
up to 8 cores (E5-2400 series)/10 cores (E5-2400 v2 series), one QPI links up to 8.0GT/s,
up to 20MB (E5-2400 series)/25MB (E5-2400 v2 series) cache,
integrated 3-channel DDR3 memory controller up to 1600MHz</td></tr>
<tr><td>Memory type</td><td>1600MHz, LV RDIMM*, DDR3, 3-channel per processor, 240-pin
* By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting</td></tr>
<tr><td>Memory DIMMs</td><td>Twelve DIMM sockets, six DIMM sockets per processor</td></tr>
<tr><td>Memory capacity</td><td>Up to 192GB DDR3 LV RDIMM (16GB x 12)</td></tr>
<tr><td>Memory protection</td><td>ECC, memory mirroring, memory sparing</td></tr>
<tr><td>Disk bays configurations</td><td>Supports one of the following configurations:
• 8 x 3.5" disk bays + 1 x slim optical bay
• 12 x 3.5" disk bays
• 8 x 2.5" disk bays + 1 x slim optical bay
• 16 x 2.5" disk bays + 1 x slim optical bay</td></tr>
<tr><td>RAID support</td><td>
<table>
<tr><th>RAID adapter</th><th>RAID support</th><th>Cache</th><th>Transfer rates</th><th>Optional upgrades</th></tr>
<tr><td>RAID 300** (onboard)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5 support</td></tr>
<tr><td>RAID 500 (LSI 9240-8i)</td><td>0, 1, 10</td><td></td><td>6Gb/s</td><td>optional upgrade key, add RAID 5, 50 support</td></tr>
<tr><td>RAID 700 (LSI 9260-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>512MB</td><td>6Gb/s</td><td>optional intelligent Battery Backup Unit (iBBU08)</td></tr>
<tr><td>RAID 710 (LSI 9270CV-8i)</td><td>0, 1, 10, 5, 50, 6, 60</td><td>1GB</td><td>6Gb/s</td><td>• optional CacheVault (CV) flash cache with super capacitor
• optional CacheCade Pro 2.0
• optional FastPath key</td></tr>
</table>
** RAID 300 is supported on 8 x 3.5" and 8 x 2.5" models only
</td></tr>
<tr><td>Optical drive (optional)</td><td>8 x 3.5"/8 x 2.5"/16 x 2.5" models: one slim optical bay, supports one optional slim optical
12 x 3.5" models: none optical bay, optional external USB optical is needed</td></tr>
<tr><td>Onboard network</td><td>Two Gigabit Ethernet ports by Intel i350,
one Gigabit Ethernet port by Intel 82574L, dedicate/share management</td></tr>
<tr><td>Front ports</td><td>One analog VGA DB-15 connector (for 8 x 3.5", 8 x 2.5", and 16 x 2.5" models), two USB 2.0</td></tr>
<tr><td>Rear ports</td><td>Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td> 

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6
Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 2.0 x8 (x4)
Slot 4: Low Profile, PCIe 3.0 x8 (x4 elec)
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8</td></tr>
<tr><td>Graphics</td><td>Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz</td></tr>
</table>

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ThinkServer RD440 Platform Systems Specifications - II of II

Components	Specifications	
Intelligent Diagnostics Module (optional)	Supports optional Intelligent Diagnostics Module (IDM) basic or IDM Premium on selected 8 x 3.5"/8 x 2.5"/16 x 2.5" models, IDM basic LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part	
Systems management (iKVM is optional)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Front control panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate	
Security features (TPM is optional)	Power-on password/administrator password/Trusted Platform Module (TCG 1.2-compliant)	
Cooling fans	5 fans, hot-swap, 4 + 1 redundant	
Cable mgmt (opt)	Optional cable management arm on selected models	
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies	
Hot-swap parts	Disk drives, power supplies, and cooling fans	
Safety, environment, and certifications	Environmental certifications	• **Energy Star Server 2.0** qualified • RoHS-compliant
	EMC	FCC Class A, CSA, CE
	240VA	Supports
	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - non operating (no package)	-10 °C to 60 °C
	Temperature - non operating (with package)	-40 °C to 70 °C
	Altitude - operating	Supported Altitude (unpressurized): 0-10000ft (0-3048m)
	Humidity - operating	8%~80%, non-condensing
	Humidity - non operating (no package)	8%~80%, non-condensing
	Humidity - non operating (with package)	8%~90%, non-condensing
	Acoustic noise (idle/working mode)	

	System Configuration	
Category	Entry level	High-end
CPU	1	2
Memory	4GB x 1	4GB x 12
Optical Drive	Slim optical	None
Drive Bays	8 x 3.5"	12 x 3.5"
RAID	RAID500	RAID500
HDD	2 x 500GB 3.5" SATA	12 x 2TB 3.5" SAS
PSU	800Wx1	800Wx2
Sound Pressure (operating)	44.98 dB(A)	44.2 dB(A)
Sound Pressure (idle)	44.5 dB(A)	44.7 dB(A)

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ThinkServer RD440 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2400 v2 Series									
Xeon E5-2440 v2	8	16	1.9 GHz	2.4 GHz	20MB	7.2 GT/s	95W	DDR3-1600	0C19539
Xeon E5-2450 v2	8	16	2.5 GHz	3.3 GHz	20MB	8 GT/s	95W	DDR3-1600	0C19538
Xeon E5-2450L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	60W	DDR3-1600	0C19544
Xeon E5-2470 v2	10	20	2.4 GHz	3.2 GHz	25MB	8 GT/s	95W	DDR3-1600	0C19537
Xeon E5-2407 v2	4	4	2.4 GHz	2.4 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19542
Xeon E5-2420 v2	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19541
Xeon E5-2430 v2	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	80W	DDR3-1600	0C19540
Xeon E5-2430L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60W	DDR3-1600	0C19545
Xeon E5-2403 v2	4	4	1.8 GHz	1.8 GHz	10MB	6.4 GT/s	80W	DDR3-1333	0C19543
Intel Xeon E5-2400 Series									
Xeon E5-2450L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89450
Xeon E5-2450	8	16	2.1 GHz	2.9 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89444
Xeon E5-2440	6	12	2.4 GHz	2.9 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89445
Xeon E5-2430L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89451
Xeon E5-2407	4	4	2.2 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89448
Xeon E5-2403	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89449
Xeon E5-2430	6	12	2.2 GHz	2.7 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89446
Xeon E5-2420	6	12	1.9 GHz	2.4 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89447
Xeon E5-2470	8	16	2.3 GHz	3.1 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89443

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice.
The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

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ThinkServer RD440 Optional Configurations - Storage and RAID

Disk drive options for 3.5" disk bay models (8 x 3.5"/12 x 3.5")

Hot-swap disk drive options for 3.5" bay	Part Number
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	4XB0F28644
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573

Disk drive options for 2.5" disk bay models (8 x 2.5"/16 x 2.5")

Hot-swap disk drive options for 2.5" bay	Part Number
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 300 Upgrade Key for Advanced RAID	0A89422
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID Super Capacitor Module	0C19490
ThinkServer RAID FastPath Software Key	0C19491
ThinkServer RAID CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD440 Optional Configurations - Network, System Management, Power Supply

Network and HBA options

Network and HBA options	Part Number
ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
ThinkServer QLE2562 Dual Port 8Gb Fibre Channel HBA by Qlogic	0C19482

Security options

Trusted Platform Module options	Part Number
ThinkServer Trusted Platform Module	0A89428

Systems management options

System Management option for iKVM	Part Number
ThinkServer Management Module Premium	67Y2624
Cable Management option	**Part Number**
ThinkServer Cable management Arm	0A89476

Power supply options

Power supply option	Part Number
ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack	4X20E54690

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ThinkServer RD440 Operating System and Virtualization Supportability Matrix

List of operating system and virtualization software supported on ThinkServer RD440

Operating System/Virtualization	Certified	Support ROK	Supports EasyStartup	Preloaded
Windows Server 2008 x86 Edition				
Windows Server 2008 Standard Edition (x86)			•	
Windows Server 2008 Enterprise Edition (x86)			•	
Windows Server 2008 Datacenter Edition (x86)			•	
Windows Server 2008 x64 Edition				
Windows Server 2008 Standard Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Enterprise Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 Datacenter Edition (x64) (including Hyper-V)	•		•	
Windows Server 2008 R2 (x64) with SP1				
Windows Server 2008 Standard Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Enterprise Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Server 2008 Datacenter Edition R2 with SP1 (including Hyper-V)	•	•	•	
Windows Small Business Server 2011				
Windows Small Business Server 2011 Essentials	•		•	
Windows Small Business Server 2011 Standard	•	•	•	
Windows Small Business Server Premium Add-On (including Hyper-V)	•	•	•	
Windows Server 2012				
Windows Server 2012 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 Essentials	•	•	•	•
Windows Server 2012 Hyper-V	•		•	
Windows Server 2012 R2				
Windows Server 2012 R2 Standard (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Datacenter (including Hyper-V)	•	•	•	•
Windows Server 2012 R2 Essentials	•	•	•	•
Windows Server 2012 R2 Hyper-V	•		•	
SUSE Linux Enterprise Server x86				
SUSE Linux Enterprise Server 10 SP4			•	
SUSE Linux Enterprise Server 11 SP2	•		•	
SUSE Linux Enterprise Server 11 SP3	•		•	
SUSE Linux Enterprise Server x64				
SUSE Linux Enterprise Server 10 SP4			•	
SUSE Linux Enterprise Server 11 SP2	•		•	
RedHat Enterprise Linux Server (RHEL) x86				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
RedHat Enterprise Linux Server x64				
RHEL 5.9	•		•	
RHEL 5.10	•		•	
RHEL 6.4	•		•	
RHEL 6.5	•		•	
VMware x64				
VMware ESXi 5.1 U1	•		•	•
VMware ESXi 5.5	•	•	•	•
Microsoft Hyper V				
Microsoft Hyper-V server 2008	•		•	
Microsoft Hyper-v server 2008 R2 SP1	•		•	
Citrix				
Citrix XenServer 6.1	•		•	
Citrix XenServer 6.0.2	•		•	

Note:

- *For more information on ThinkServer operating system and virtualization software, please visit ThinkServer Software page: http://shop.lenovo.com/us/en/servers/thinkserver/server-software.html*
- *For ThinkServer operating system and virtualization software options, please visit ThinkServer OS and virtualization Options document: http://www.lenovo.com/images/products/server/pdfs/datasheets/ThinkServer_OS_&_Virtualization_Options_Datasheet.pdf*

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ThinkServer RD440 Services Upgrade Options

Partial list of Lenovo Services for ThinkServer RD440 models with 3-year onsite base warranty
For more information see: **http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html**

Upgrade Service Description	Part Number
Warranty	
3YR Onsite 24x7x4 Hour Response	5WS0F15458
3YR Onsite 24x7x8 Hour Response	5WS0F15392
3YR Onsite 9x5x4 Hour Response	5WS0F15355
4YR Onsite 24x7x4 Hour Response	5WS0F15443
4YR Onsite 24x7x8 Hour Response	5WS0F15395
4YR Onsite 9x5x4 Hour Response	5WS0F15394
4YR Onsite NBD	5WS0F15415
5YR Onsite 24x7x4 Hour Response	5WS0F15377
5YR Onsite 24x7x8 Hour Response	5WS0F15440
5YR Onsite 9x5x4 Hour Response	5WS0F15430
5YR Onsite NBD	5WS0F15419
Keep Your Drive (KYD) Service	
3YR Keep Your Drive	5PS0F15436
3YR Onsite 24x7x4 Hour Response + KYD	5PS0F15376
3YR Onsite 24x7x8 Hour Response + KYD	5PS0F15349
3YR Onsite 9x5x4 Hour Response + KYD	5PS0F15448
4YR Onsite 24x7x4 Hour Response + KYD	5PS0F15389
4YR Onsite 24x7x8 Hour Response + KYD	5PS0F15359
4YR Onsite 9x5x4 Hour Response + KYD	5PS0F15456
4YR Onsite NBD + KYD	5PS0F15459
5YR Onsite 24x7x4 Hour Response + KYD	5PS0F15402
5YR Onsite 24x7x8 Hour Response + KYD	5PS0F15381
5YR Onsite 9x5x4 Hour Response + KYD	5PS0F15366
5YR Onsite NBD + KYD	5PS0F15391
Priority Technical Support	
3YR KYD + Priority Support	5PS0F15417
3YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15352
3YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15399
3YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15444
3YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15418
3YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15398
3YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15468
3YR Priority Support	5WS0E76471
4YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15462
4YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15410
4YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15433
4YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15425
4YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15400
4YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15351
4YR Onsite NBD + KYD + Priority Support	5PS0F15373
4YR Onsite NBD + Priority Support	5WS0F15401
4YR Priority Support	5WS0E77170
5YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15350
5YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15412
5YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15471
5YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15447
5YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15437
5YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15382
5YR Onsite NBD + KYD + Priority Support	5PS0F15388
5YR Onsite NBD + Priority Support	5WS0F15463
5YR Priority Support	5WS0E77173

Upgrade Service Description	Part Number
Post Warranty	
1YR Onsite 24x7x4 Hour Response	5WS0F15435
1YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15370
1YR Onsite 24x7x8 Hour Response	5WS0F15427
1YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15361
1YR Onsite 9x5x4 Hour Response	5WS0F15416
1YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15348
1YR Onsite NBD	5WS0F15407
1YR Onsite NBD + Priority Support	5WS0F15465
TopSeller Priority (TopSeller models only)	
3YR Onsite 24x7x4 Hour Response	5WS0D73789
3YR Onsite 9x5x4 Hour Response	5WS0D73787
4YR Onsite 24x7x4 Hour Response	5WS0D73792
4YR Onsite 9x5x4 Hour Response	5WS0D73791
4YR Onsite NBD	5WS0F15470
3YR Onsite 24x7x4 Hour Response+Priority Support	5WS0F15414
3YR Onsite 9x5x4 Hour Response+Priority Support	5WS0F15423
3YR Priority Support	5WS0E76457
4YR Priority Support	5WS0E76482

Note:

24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window *(requires Location Activation)*

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
- Best coverage for business critical work loads

9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window *(requires Location Activation)*

- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.

24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window *(requires Location Activation)*

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.

Priority Technical Support

Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.

Keep Your Drive (KYD) Service

Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.
To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool: http://www.lenovo.com/services_warranty/us/en/locator.html
Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

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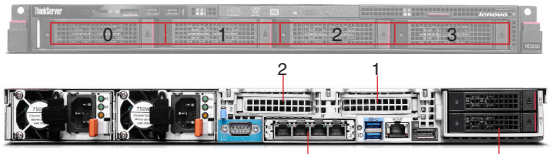
ThinkServer RD550 with 3.5" Disk Bay - TopSeller - 70CV - I

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Ann Date (mm/yy)
70CV001CUX	1xE5-2609 v3 6C/1.9GHz/ 15MB/85W/1600MHz	4XG0F28803	1x8GB 2133MHz RDIMM	110i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CV001DUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28802	1x8GB 2133MHz RDIMM	110i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CV001EUX	1xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	4XG0F28800	1x8GB 2133MHz RDIMM	510i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CV001FUX	1xE5-2650 v3 10C/2.3GHz/ 25MB/105W/2133MHz	4XG0F28799	1x8GB 2133MHz RDIMM	510i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CV001GUX	1xE5-2670 v3 12C/2.3GHz/ 30MB/120W/2133MHz	4XG0F28797	1x8GB 2133MHz RDIMM	720i+1GB RAM	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	09/14

Components	Specification
Form factor	1U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 6 with AnyRAID 720i. 12Gb/s SAS/SATA. 720i needs cache for RAID 6 support. Optional cache for 720i: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 4 x 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives.
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: Rear disk drive and M.2 SSD can not be supported simultaneously, only one can be selected per system.*
Optical drive	Optional one Ultraslim optical drive, DVD-ROM or DVD±RW
Tape drive bays	None
Network interfaces	One dedicated management port. One AnyFabric slots for customized LOM. Optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	One DisplayPort, two USB 2.0
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	8 (7+1, dual processors) or 6 (5+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 145W CPU/no 135W 4, 6, or 8 cores CPUno GPU card/redundant PSU/no FLFH card/no PCIe SSD adapter/no 1100W PSU.*
Weight	Minimum configuration: 13.5 kg (29.76 lb), maximum: 21 kg (46.3 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 780 mm (30.7 in)



AnyFabric slot 1 (Network adapter is optional) Optional 2 x 2.5" rear bays

Expansion slots

Up to two half-length PCIe 3.0 x16 slots, depending on the riser cards and processors installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, low-profile, half length
Slot 2 (riser card 2): PCIe 3.0 x 16, low-profile, half length, requires 2nd riser card and 2nd CPU

Core Options for ThinkServer RD550 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4)RDIMM
4XB0F28712 ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45719 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45743 ThinkServer 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0F28714 ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45715 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XF0G45878 Lenovo ThinkServer 1U x16 PCIe Riser 2 Kit
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD550 Options* sheet.

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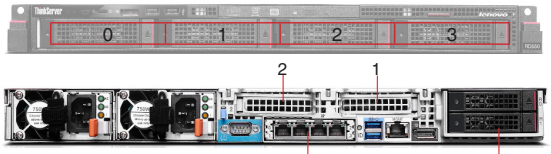
ThinkServer RD550 with 3.5" Disk Bay - TopSeller - 70CV - II

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Ann Date (mm/yy)
70CV001JUX	1xE5-2609 v3 6C/1.9GHz/ 15MB/85W/1600MHz	4XG0F28803	1x8GB 2133MHz RDIMM	510i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CV001KUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28802	1x8GB 2133MHz RDIMM	510i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CV001LUX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28801	1x8GB 2133MHz RDIMM	510i	4x3.5" HS	Open	No	1	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CV001MUX	2xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	-	2x8GB 2133MHz RDIMM	510i	4x3.5" HS	Open	No	2	DVD±RW	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CV001NUX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28804	1x8GB 2133MHz RDIMM	110i	4x3.5" HS	Open	No	No	No	No	TPM	No	TSM	No	550Wx1 Platinum	10/14

Components	Specification
Form factor	1U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 6 with AnyRAID 720i. 12Gb/s SAS/SATA. 720i needs cache for RAID 6 support. Optional cache for 720i: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 4 x 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives.
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: Rear disk drive and M.2 SSD can not be supported simultaneously, only one can be selected per system.*
Optical drive	Optional one Ultraslim optical drive, DVD-ROM or DVD±RW
Tape drive bays	None
Network interfaces	One dedicated management port. One AnyFabric slots for customized LOM. Optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	One DisplayPort, two USB 2.0
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	8 (7+1, dual processors) or 6 (5+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 145W CPU/no 135W 4, 6, or 8 cores CPUno GPU card/redundant PSU/no FLFH card/no PCIe SSD adapter/no 1100W PSU.*
Weight	Minimum configuration: 13.5 kg (29.76 lb), maximum: 21 kg (46.3 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 780 mm (30.7 in)



AnyFabric slot 1 (Network adapter is optional) Optional 2 x 2.5" rear bays

Expansion slots

Up to two half-length PCIe 3.0 x16 slots, depending on the riser cards and processors installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, low-profile, half length
Slot 2 (riser card 2): PCIe 3.0 x 16, low-profile, half length, requires 2nd riser card and 2nd CPU

Core Options for ThinkServer RD550 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4)RDIMM
4XB0F28712 ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45719 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45743 ThinkServer 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0F28714 ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45715 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XF0G45878 Lenovo ThinkServer 1U x16 PCIe Riser 2 Kit
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD550 Options* sheet.

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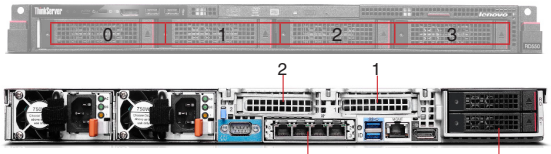
ThinkServer RD550 with 3.5" Disk Bay - TopSeller - 70CV - III

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Ann Date (mm/yy)
70CV001RUX	2xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	-	16x8GB 2133MHz RDIMM	510i	4x3.5" HS	4x2TB 3.5" SATA6Gbs 7.2K	No	1	No	10GbEx2 RJ-45 AnyFabric	TPM	No	TSM Premium	No	750Wx2 Platinum	12/14
70CV001SUX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28801	2x8GB 2133MHz RDIMM	110i	4x3.5" HS	2x1TB 3.5" SATA6Gbs 7.2K	No	1	DVD±RW	GbEx4 RJ-45 AnyFabric	TPM	No	TSM Premium	No	750Wx2 Platinum	02/15

Components	Specification
Form factor	1U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 6 with AnyRAID 720i. 12Gb/s SAS/SATA. 720i needs cache for RAID 6 support. Optional cache for 720i: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 4 x 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives.
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: Rear disk drive and M.2 SSD can not be supported simultaneously, only one can be selected per system.*
Optical drive	Optional one Ultraslim optical drive, DVD-ROM or DVD±RW
Tape drive bays	None
Network interfaces	One dedicated management port. One AnyFabric slots for customized LOM. Optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, or 1100 W ac power supplies. 550 W and 1100 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	One DisplayPort, two USB 2.0
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	8 (7+1, dual processors) or 6 (5+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 145W CPU/no 135W 4, 6, or 8 cores CPUno GPU card/redundant PSU/no FLFH card/no PCIe SSD adapter/no 1100W PSU.*
Weight	Minimum configuration: 13.5 kg (29.76 lb), maximum: 21 kg (46.3 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 780 mm (30.7 in)



AnyFabric slot 1 (Network adapter is optional) Optional 2 x 2.5" rear bays

Expansion slots

Up to two half-length PCIe 3.0 x16 slots, depending on the riser cards and processors installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, low-profile, half length
Slot 2 (riser card 2): PCIe 3.0 x 16, low-profile, half length, requires 2nd riser card and 2nd CPU

Core Options for ThinkServer RD550 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4)RDIMM
4XB0F28712 ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45719 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45743 ThinkServer 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD
4XB0F28714 ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45715 ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XF0G45878 Lenovo ThinkServer 1U x16 PCIe Riser 2 Kit
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD550 Options* sheet.

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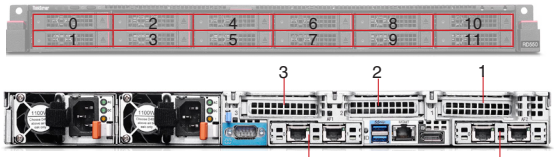
ThinkServer RD550 with 2.5" Disk Bay - TopSeller - 70CX - I

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Ann Date (mm/yy)
70CX001XUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28802	1x8GB 2133MHz RDIMM	510i+Key	8x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CX001YUX	1xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	4XG0F28800	1x8GB 2133MHz RDIMM	510i+Key	8x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CX0020UX	1xE5-2650 v3 10C/2.3GHz/ 25MB/105W/2133MHz	4XG0F28799	1x8GB 2133MHz RDIMM	720ix+1GB RAM	12x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CX0021UX	1xE5-2670 v3 12C/2.3GHz/ 30MB/120W/2133MHz	4XG0F28797	1x8GB 2133MHz RDIMM	720ix+1GB RAM	12x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CX0023UX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28802	1x8GB 2133MHz RDIMM	720ix+1GB RAM	12x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	10/14

Components	Specification
Form factor	1U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i on 8 x 2.5" model, 720ix on 12 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath.
Disk drive bays	Up to 8 (0-7) or 12 (0-11) 2.5" hot-swap disk drive bays
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives. Available on 12 x 2.5" and 720ix model only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port. Two AnyFabric slots for customized LOM. Optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 750 W ac or 1100 W ac power supplies. 1100 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, 1100 W is 110V - 240V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	8 (7+1, dual processors) or 6 (5+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 145W CPU/no 135W 4, 6, or 8 cores CPUno GPU card/redundant PSU/no FLFH card/no PCIe SSD adapter/no 1100W PSU.*
Weight	Minimum configuration: 13.5 kg (29.76 lb), maximum: 21 kg (46.3 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 780 mm (30.7 in)



AnyFabric slot 1 (Network adapter is optional) AnyFabric slot 2 (Network adapter is optional)

Expansion slots

Up to three low-profile and half-length PCIe 3.0 x16 slots, depending on the riser cards and processors installed:
Slot 1 (riser card 1): PCIe 3.0 x 16 (x8 wired), low-profile, half length
Slot 2 (riser card 1): PCIe 3.0 x 16 (x8 wired), low-profile, half length
Slot 3 (riser card 2): PCIe 3.0 x 16, low-profile, half length, requires 2nd riser card and 2nd CPU

Core Options for ThinkServer RD550 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4)RDIMM
4XF0G45880 Lenovo ThinkServer 1U x8/x8 PCIe Riser Kit
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD550 Options* sheet.

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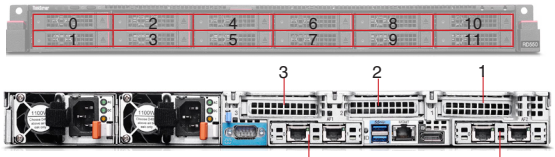
ThinkServer RD550 with 2.5" Disk Bay - TopSeller - 70CX - II

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Ann Date (mm/yy)
70CX0024UX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28801	1x8GB 2133MHz RDIMM	720ix+1GB RAM	12x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CX0025UX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28801	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CX0026UX	2xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	-	2x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	10/14
70CX0027UX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28804	1x8GB 2133MHz RDIMM	110i	8x2.5" HS	Open	No	No	None	No	TPM	No	TSM	No	750Wx1 Platinum	10/14

Components	Specification
Form factor	1U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i on 8 x 2.5" model, 720ix on 12 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath.
Disk drive bays	Up to 8 (0-7) or 12 (0-11) 2.5" hot-swap disk drive bays
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives. Available on 12 x 2.5" and 720ix model only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port. Two AnyFabric slots for customized LOM. Optional discrete network adapters via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 750 W ac or 1100 W ac power supplies. 1100 W is 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, 1100 W is 110V - 240V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	8 (7+1, dual processors) or 6 (5+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 °C continuous operation configuration limitation: no 145W CPU/no 135W 4, 6, or 8 cores CPUno GPU card/redundant PSU/no FLFH card/no PCIe SSD adapter/no 1100W PSU.*
Weight	Minimum configuration: 13.5 kg (29.76 lb), maximum: 21 kg (46.3 lb)
Dimensions	Height: 43 mm (1.7 in), width: 482 mm (19 in), depth: 780 mm (30.7 in)



AnyFabric slot 1 (Network adapter is optional) AnyFabric slot 2 (Network adapter is optional)

Expansion slots

Up to three low-profile and half-length PCIe 3.0 x16 slots, depending on the riser cards and processors installed:
Slot 1 (riser card 1): PCIe 3.0 x 16 (x8 wired), low-profile, half length
Slot 2 (riser card 1): PCIe 3.0 x 16 (x8 wired), low-profile, half length
Slot 3 (riser card 2): PCIe 3.0 x 16, low-profile, half length, requires 2nd riser card and 2nd CPU

Core Options for ThinkServer RD550 (partial)

4X70F28590 ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591 ThinkServer 32GB DDR4-2133MHz (4Rx4)RDIMM
4XF0G45880 Lenovo ThinkServer 1U x8/x8 PCIe Riser Kit
4X20F28576 ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD550 Options* sheet.

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ThinkServer RD550 - Relationship

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	Slots	Optical	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power	Ann Date (mm/yy)
70CX001XUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28802	1x8GB 2133MHz RDIMM	510i+Key	8x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	09/14
70CX001YUX	1xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	4XG0F28800	1x8GB 2133MHz RDIMM	510i+Key	8x2.5" HS	Open	No	2	None	No	TPM	No	TSM	No	750Wx1 Platinum	09/14

For a list of all supported options, Please see *ThinkServer RD550 Options* sheet.

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ThinkServer RD550 Options

Partial list of accessories supported on ThinkServer RD550

Processors	
4XG0F28790	Lenovo ThinkServer RD550 Intel Xeon E5-2699 v3 (18C, 145W, 2.3GHz) Processor Option Kit
4XG0F28791	Lenovo ThinkServer RD550 Intel Xeon E5-2698 v3 (16C, 135W, 2.3GHz) Processor Option Kit
4XG0F28792	Lenovo ThinkServer RD550 Intel Xeon E5-2697 v3 (14C, 145W, 2.6GHz) Processor Option Kit
4XG0F28793	Lenovo ThinkServer RD550 Intel Xeon E5-2695 v3 (14C, 120W, 2.3GHz) Processor Option Kit
4XG0F28794	Lenovo ThinkServer RD550 Intel Xeon E5-2690 v3 (12C, 135W, 2.6GHz) Processor Option Kit
4XG0F28795	Lenovo ThinkServer RD550 Intel Xeon E5-2683 v3 (14C, 120W, 2.0GHz) Processor Option Kit
4XG0F28796	Lenovo ThinkServer RD550 Intel Xeon E5-2680 v3 (12C, 120W, 2.5GHz) Processor Option Kit
4XG0F28797	Lenovo ThinkServer RD550 Intel Xeon E5-2670 v3 (12C, 120W, 2.3GHz) Processor Option Kit
4XG0F28798	Lenovo ThinkServer RD550 Intel Xeon E5-2660 v3 (10C, 105W, 2.6GHz) Processor Option Kit
4XG0F28799	Lenovo ThinkServer RD550 Intel Xeon E5-2650 v3 (10C, 105W, 2.3GHz) Processor Option Kit
4XG0F28800	Lenovo ThinkServer RD550 Intel Xeon E5-2640 v3 (8C, 90W, 2.6GHz) Processor Option Kit
4XG0F28801	Lenovo ThinkServer RD550 Intel Xeon E5-2630 v3 (8C, 85W, 2.4GHz) Processor Option Kit
4XG0F28802	Lenovo ThinkServer RD550 Intel Xeon E5-2620 v3 (6C, 85W, 2.4GHz) Processor Option Kit
4XG0F28803	Lenovo ThinkServer RD550 Intel Xeon E5-2609 v3 (6C, 85W, 1.9GHz) Processor Option Kit
4XG0F28804	Lenovo ThinkServer RD550 Intel Xeon E5-2603 v3 (6C, 85W, 1.6GHz) Processor Option Kit
4XG0F28805	Lenovo ThinkServer RD550 Intel Xeon E5-2650L v3 (12C, 65W, 1.8GHz) Processor Option Kit
4XG0F28806	Lenovo ThinkServer RD550 Intel Xeon E5-2630L v3 (8C, 55W, 1.8GHz) Processor Option Kit
4XG0F28829	Lenovo ThinkServer RD550 Intel Xeon E5-2667 v3 (8C, 135W, 3.2GHz) Processor Option Kit
4XG0F28830	Lenovo ThinkServer RD550 Intel Xeon E5-2643 v3 (6C, 135W, 3.4GHz) Processor Option Kit
4XG0F28831	Lenovo ThinkServer RD550 Intel Xeon E5-2637 v3 (4C, 135W, 3.5GHz) Processor Option Kit
4XG0F28832	Lenovo ThinkServer RD550 Intel Xeon E5-2623 v3 (4C, 105W, 3.0GHz) Processor Option Kit
4XG0F28833	Lenovo ThinkServer RD550 Intel Xeon E5-2685 v3 (12C, 120W, 2.6GHz) Processor Option Kit
Memory	
4X70F28588	ThinkServer 4GB DDR4-2133MHz (1Rx8) RDIMM
4X70F28589	ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X70F28590	ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591	ThinkServer 32GB DDR4-2133MHz (4Rx4) LRDIMM
Drives - 3.5"	
3.5" Hot Swap SATA Hard Drives	
4XB0F28712	ThinkServer Gen 5 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0F28713	ThinkServer Gen 5 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0F28714	ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45715	ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
3.5" Hot Swap 7.2K SAS Hard Drives	
4XB0G45716	ThinkServer Gen 5 3.5" 1TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45717	ThinkServer Gen 5 3.5" 2TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45718	ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45719	ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
3.5" Hot Swap SATA Solid State Drives	
4XB0G45742	ThinkServer Gen 5 3.5" 120GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45743	ThinkServer Gen 5 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45744	ThinkServer Gen 5 3.5" 300GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45745	ThinkServer Gen 5 3.5" 480GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45746	ThinkServer Gen 5 3.5" 600GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45747	ThinkServer Gen 5 3.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
3.5" Hot Swap SAS Solid State Drives	
4XB0G45733	ThinkServer Gen 5 3.5" 200GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45734	ThinkServer Gen 5 3.5" 400GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45735	ThinkServer Gen 5 3.5" 800GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
Drives - 2.5"	
2.5" Hot Swap SATA Hard Drives	
4XB0G45720	ThinkServer Gen 5 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45721	ThinkServer Gen 5 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
2.5" Hot Swap 10K SAS Hard Drives	
4XB0G45722	ThinkServer Gen 5 2.5" 300GB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45723	ThinkServer Gen 5 2.5" 600GB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45724	ThinkServer Gen 5 2.5" 900GB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45725	ThinkServer Gen 5 2.5" 1.2TB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
2.5" Hot Swap 15K SAS Hard Drives	
4XB0G45726	ThinkServer Gen 5 2.5" 146GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45727	ThinkServer Gen 5 2.5" 300GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45728	ThinkServer Gen 5 2.5" 450GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45729	ThinkServer Gen 5 2.5" 600GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
2.5" Hot Swap SATA Solid State Drives	
4XB0G45736	ThinkServer Gen 5 2.5" 120GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45737	ThinkServer Gen 5 2.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45738	ThinkServer Gen 5 2.5" 300GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45739	ThinkServer Gen 5 2.5" 480GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45740	ThinkServer Gen 5 2.5" 600GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45741	ThinkServer Gen 5 2.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive

PCIe Solid State Drives	
4XB0F28661	ThinkServer 1.6TB ioMemory SX300 Performance PCIe 2.0 Solid State Drive by FusionIO
4XB0F28662	ThinkServer 3.2TB ioMemory SX300 Performance PCIe 2.0 Solid State Drive by FusionIO
AnyRAID	
4XB0F28690	ThinkServer RAID 110i RAID 5 Upgrade
4XB0F28691	ThinkServer RAID 510i AnyRAID Adapter
4XB0F28692	ThinkServer RAID 510i RAID 5 Upgrade
4XB0F28693	ThinkServer RAID 720i AnyRAID Adapter
4XB0F28694	ThinkServer RAID 720ix AnyRAID Adapter with Expander
4XB0F28695	ThinkServer RAID 720i 1GB Modular DRAM Upgrade
4XB0F28696	ThinkServer RAID 720i 1GB Modular Flash and Supercapacitor Upgrade
4XB0F28697	ThinkServer RAID 720i 2GB Modular Flash and Supercapacitor Upgrade
4XB0F28698	ThinkServer RAID 720i 4GB Modular Flash and Supercapacitor Upgrade
Connectivity & Host Bus Adapters	
PCIe Ethernet Adapters - 1Gbps	
4XC0F28730	ThinkServer I350-T2 PCIe 1Gb 2 Port Base-T Ethernet Adapter by Intel
4XC0F28731	ThinkServer I350-T4 PCIe 1Gb 4 Port Base-T Ethernet Adapter by Intel
PCIe Converged Network Adapters - 10Gpbs	
4XC0F28732	ThinkServer X540-T2 PCIe 10Gb 2 Port Base-T Ethernet Adapter by Intel
4XC0F28733	ThinkServer X520-SR2 PCIe 10Gb 2 Port SFP+ Ethernet Adapter by Intel
4XC0F28734	ThinkServer X520-DA2 PCIe 10Gb 2 Port SFP+ Ethernet Adapter by Intel
4XC0F28735	ThinkServer 10Gb SR Optical Module by Intel
4XC0F28736	ThinkServer OCe14102-UX-L PCIe 10Gb 2 Port SFP+ Converged Network Adapter by Emulex
4XC0F28737	ThinkServer 10Gb SR Optical Module by Emulex
PCIe Converged Network Adapters - 40Gpbs	
4XC0F28738	ThinkServer OCe14401-UX-L PCIe 40Gb 1 Port QSFP+ Converged Network Adapter by Emulex
4XC0F28739	ThinkServer 40Gb SR Optical Module by Emulex
PCIe Fibre Channel Adapters	
4XB0F28704	ThinkServer LPe16002B-M8-L PCIe 8Gb 2 Port Fibre Channel Adapter by Emulex
4XB0F28705	ThinkServer LPe16002B-M6-L PCIe 16Gb 2 Port Fibre Channel Adapter by Emulex
4XC0F28745	ThinkServer QLE2672 PCIe 16Gb 2 Port Fibre Channel Adapter by Qlogic
SAS Controllers & Upgrades	
4XB0F28699	ThinkServer 9286CV-8e PCIe 6Gb 8 Port External SAS RAID Adapter by LSI
4XB0F28700	ThinkServer CacheVault Data Protection Upgrade
4XB0F28701	ThinkServer RAID FastPath Key
4XB0F28702	ThinkServer RAID CacheCade Pro 2.0 Key
Backup Options	
4XF0G45866	ThinkServer LTO-6 Linear Tape Drive Kit by Tandberg
4XB0F28689	ThinkServer 2.5TB SAS 6Gbps LTO-6 Tape
Redundant Power Supply	
4X20F28579	Lenovo ThinkServer Gen 5 550W Platinum Hot Swap Power Supply
4X20F28575	Lenovo ThinkServer Gen 5 750W Platinum Hot Swap Power Supply
4X20F28576	Lenovo ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4X20F28577	Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
System Options	
4XF0G45871	Lenovo ThinkServer Gen 5 1U 4-Post Slide Rail Kit
4XF0G45874	Lenovo ThinkServer Gen 5 1U Cable Management Arm
4XF0G45878	Lenovo ThinkServer 1U x16 PCIe Riser 2 Kit
4XF0G45879	Lenovo ThinkServer 1U x16 PCIe Riser 1 Kit
4XF0G45880	Lenovo ThinkServer 1U x8/x8 PCIe Riser Kit
4XF0G45885	Lenovo ThinkServer Gen 5 1U 3.5" 4-Drive Backplane Kit
4XF0G45873	Lenovo ThinkServer Gen 5 4-Post Static Rail Kit
4XF0G45877	Lenovo ThinkServer Gen 5 2.5" 2-Drive Rear Backplane Kit
4X90F92980	Lenovo ThinkServer Gen 5 DisplayPort to VGA Dongle
4XF0G45876	Lenovo ThinkServer Gen 5 Cable Management Bar
4X90F92964	ThinkServer C13-C14 WW 250V 10A 1.8m Jumper Cord
4XA0E97775	ThinkPad UltraSlim USB DVD Burner
Microsoft Windows Server ROK	
4XI0E51561	Windows Server 2012 R2 Standard ROK (2 CPU/2VMs)
4XI0E51562	Windows Server 2012 R2 Datacenter ROK (2 CPU)
4XI0E51563	Windows Server 2012 R2 Essentials ROK (1-2 CPU)

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ThinkServer RD650 Overview

ThinkServer RD650 - Front and rear view

ThinkServer RD650 with 3.5" Disk Bay - Front view

ThinkServer RD650 with 2.5" + 3.5" Disk Bay - Front view

ThinkServer RD650 with 2.5" Disk Bay - Front view

ThinkServer RD650 - Rear view (All chassis types share one rear view)

Note: Some modules are optional depending on models.

ThinkServer RD650 supporting list for front disk drive bays, rear disk drive bays, ultraslim optical bays, tape drive bays, M.2 SSD drives

Chassis Type	Front Disk Bays Supported	Ultraslim Optical Bay Supported	When this AnyRAID is selected, the type of internal storage can be supported			
			AnyRAID 110i (SATA)	AnyRAID 510i (SATA/SAS)	AnyRAID 720i (SATA/SAS)	AnyRAID 720ix (SATA/SAS)
ThinkServer RD650 with 3.5" Disk Bay	6 x 3.5"	-	Front bay	Front bay	Front bay	-
	12 x 3.5"	-	-	-	-	Front bay + rear bay/M.2 SSD
ThinkServer RD650 with 2.5" + 3.5" Disk Bay	6 x 2.5" + 9 x 3.5"	-	-	-	-	Front bay + rear bay/M.2 SSD
ThinkServer RD650 with 2.5" Disk Bay	8 x 2.5"	Optional	-	Front bay	Front bay	Front bay + rear bay/M.2 SSD/Tape
	16 x 2.5"	Optional	-	-	-	Front bay + rear bay/M.2 SSD
	24 x 2.5"	-	-	-	-	Front bay + rear bay/M.2 SSD
	No front bay	-	M.2 SSD	-	-	-

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

Note:
1. " - " shows the configuration is not available.
2. Tape drive, rear disk drive, and M.2 SSD can not be supported simultaneously, only one device can be selected per system.
3. Rear disk bay supports SATA only.

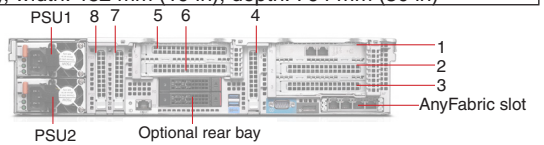
ThinkServer RD650 with 3.5" Disk Bay - TopSeller - 70D0 (September 2014)

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70D0000FUX	1xE5-2609 v3 6C/1.9GHz/ 15MB/85W/1600MHz	4XG0F28820	1x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D0000GUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	1x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D0000HUX	1xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	4XG0F28817	1x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D0000JUX	1xE5-2650 v3 10C/2.3GHz/ 25MB/105W/2133MHz	4XG0F28816	1x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D0000KUX	1xE5-2690 v3 12C/2.6GHz/ 30MB/135W/2133MHz	4XG0F28811	1x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i for 6 x 3.5" model, 720ix for 12 x 3.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 6 (0-5) or 12 (0-11) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays on 12 x 3.5" models. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives. Available on 12 x 3.5" and 720ix models only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB/ HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter — 1.6TB/3.2TB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: SAS drive needs 510i/720i/720ix.*
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 135W CPU on 550 W and 12 x 3.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 x 16 slots depending on the riser cards installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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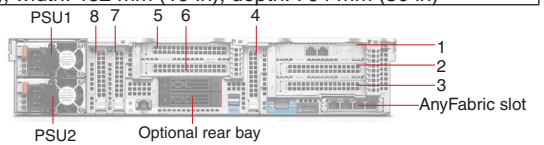
ThinkServer RD650 with 3.5" Disk Bay - TopSeller - 70D0 (October 2014)

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70D00025UX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28818	1x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D00026UX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28821	1x8GB 2133MHz RDIMM	110i	6x3.5" HS	Open	No	No	0/0	None	None	No	TPM	No	TSM	No	3-year	550Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i for 6 x 3.5" model, 720ix for 12 x 3.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 6 (0-5) or 12 (0-11) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays on 12 x 3.5" models. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives. Available on 12 x 3.5" and 720ix models only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB/ HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter — 1.6TB/3.2TB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: SAS drive needs 510i/720i/720ix.*
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 135W CPU on 550 W and 12 x 3.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 x 16 slots depending on the riser cards installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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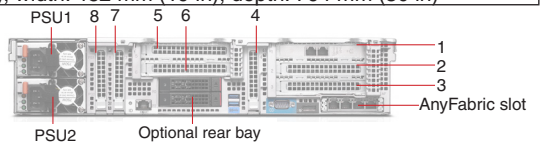
ThinkServer RD650 with 3.5" Disk Bay - TopSeller - 70D0 (December 2014)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/ FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70D00029UX	2xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	-	16x8GB 2133MHz RDIMM	720ix +1GB RAM	12x3.5" HS	12x4TB 3.5" SATA 7.2K HS	No	No	6/0	None	None	10GbEx2 RJ45	TPM	No	TSM Premium	No	3-year	1100Wx2 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i for 6 x 3.5" model, 720ix for 12 x 3.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 6 (0-5) or 12 (0-11) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays on 12 x 3.5" models. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives. Available on 12 x 3.5" and 720ix models only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB/ HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter — 1.6TB/3.2TB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: SAS drive needs 510i/720i/720ix.*
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 135W CPU on 550 W and 12 x 3.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 x 16 slots depending on the riser cards installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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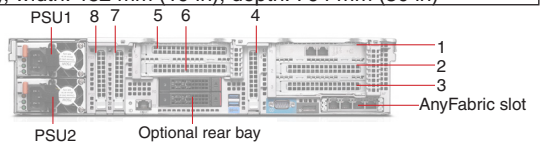
ThinkServer RD650 with 3.5" Disk Bay - TopSeller - 70D0 (February 2015)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Tape drive	Slots (HL/ FHFL)	Optical	AnyFabric	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power
70D0002BUX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28818	1x8GB 2133MHz RDIMM	720ix+1GB RAM	12x3.5" HS	Open	No	No	None	3/0	None	No	TPM	No	TSM	No	750Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 110i, 510i, and 720i for 6 x 3.5" model, 720ix for 12 x 3.5" model. RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 6 (0-5) or 12 (0-11) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays on 12 x 3.5" models. Rear bay supports SATA drives only
M.2 SSD module	Optional M.2 module, supports up to 2 optional M.2 SSD drives. Available on 12 x 3.5" and 720ix models only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs — 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs — 1TB/2TB/3TB/4TB/ HDD: 3.5" SAS 7.2K 12Gbs — 6TB HDD: 2.5" SATA 7.2K 6Gbs — 500GB/1TB SSD: 2.5" SAS 12Gbs — 200GB/400GB/800GB SSD: 3.5" SATA 6Gbs — 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter — 1.6TB/3.2TB SSD: M.2 SSD — 80GB/120GB SD: SDHC flash card — 8GB/32GB *Note: SAS drive needs 510i/720i/720ix.*
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 135W CPU on 550 W and 12 x 3.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 x 16 slots depending on the riser cards installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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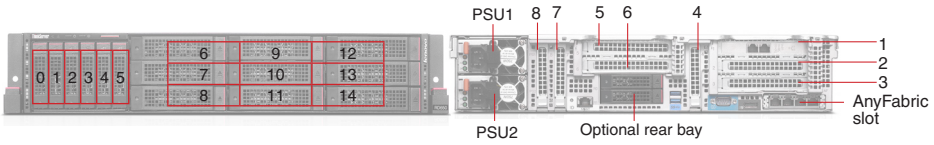
ThinkServer RD650 with 2.5" + 3.5" Disk Bay - TopSeller - 70D4 (September 2014)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70D4000CUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	1x8GB 2133MHz RDIMM	720ix +1GB RAM	6+9 HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D4000DUX	1xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	4XG0F28817	1x8GB 2133MHz RDIMM	720ix +1GB RAM	6+9 HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D4000EUX	1xE5-2650 v3 10C/2.3GHz/ 25MB/105W/2133MHz	4XG0F28816	1x8GB 2133MHz RDIMM	720ix +1GB RAM	6+9 HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70D4000FUX	1xE5-2690 v3 12C/2.6GHz/ 30MB/135W/2133MHz	4XG0F28811	1x8GB 2133MHz RDIMM	720ix +1GB RAM	6+9 HS	Open	No	No	3/0	None	None	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720ix, 12Gb/s SAS/SATA. Cahce is needed. Optional cache: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 6 x 2.5" (0-5) and 12 (6-14) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs – 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs – 1TB/2TB/3TB/4TB/ HDD: 3.5" SAS 7.2K 12Gbs – 6TB HDD: 2.5" SATA 7.2K 6Gbs – 500GB/1TB HDD: 2.5" SAS 10K 6Gbs – 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs – 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs* – 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs* – 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter – 1.6TB/3.2TB SSD: M.2 SSD – 80GB/120GB SD: SDHC flash card – 8GB/32GB
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 750 W ac or 1100 W ac or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort.
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	8 (7+1, dual processors) or 6 (5+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

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Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
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Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

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4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
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ThinkServer RD650 with 2.5" + 3.5" Disk Bay - TopSeller - 70D4 (October 2014)

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70D4001RUX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28821	1x8GB 2133MHz RDIMM	720ix +1GB RAM	6+9 HS	Open	No	No	0/0	None	None	No	TPM	No	TSM	No	3-year	750Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720ix, 12Gb/s SAS/SATA. Cahce is needed. Optional cache: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 6 x 2.5" (0-5) and 12 (6-14) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 3.5" SATA 7.2K 6Gbs – 1TB/2TB/3TB/4TB/5TB/6TB HDD: 3.5" SAS 7.2K 6Gbs – 1TB/2TB/3TB/4TB/ HDD: 3.5" SAS 7.2K 12Gbs – 6TB HDD: 2.5" SATA 7.2K 6Gbs – 500GB/1TB HDD: 2.5" SAS 10K 6Gbs – 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs – 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs* – 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs* – 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter – 1.6TB/3.2TB SSD: M.2 SSD – 80GB/120GB SD: SDHC flash card – 8GB/32GB
Optical drive	None
Tape drive bays	None
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

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Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
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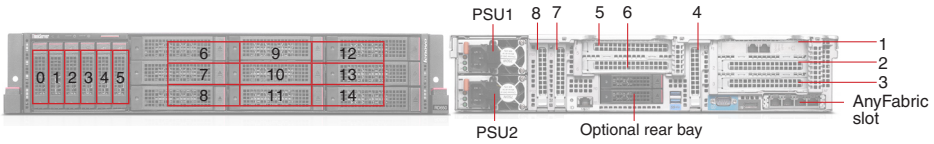

Expansion slots

Up to eight half-length PCIe 3.0 x 16 slots depending on the riser cards installed:
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Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
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Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

Core Options for ThinkServer RD650 (partial)

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4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle
For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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ThinkServer RD650 with 2.5" + 3.5" Disk Bay - TopSeller - 70D4 (February 2015)

Product Specifications Reference (PSREF)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Tape drive	Slots (HL/ FHFL)	Optical	AnyFabric	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power
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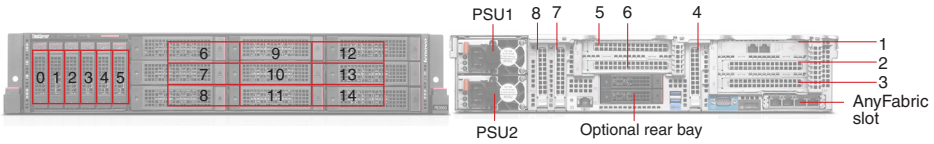
Components	Specification		
Form factor	2U rack		
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache		
Chipset	Intel C612 Platform Controller Hub (PCH)		
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz		
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)		
Memory protection	ECC, memory mirroring, lockstep, and memory sparing		
AnyRAID support	RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720ix, 12Gb/s SAS/SATA. Cahce is needed. Optional cache: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath		
Disk drive bays	Up to 6 x 2.5" (0-5) and 12 (6-14) 3.5" hot-swap disk drive bays. Up to 2 x 2.5" rear hot-swap disk drive bays. Rear bay supports SATA drives only		
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives		
SD module	Optional SD module, supports up to 2 optional SDHC flash cards		
Internal storage	HDD	3.5" SATA 7.2K 6Gbs	1TB/2TB/3TB/4TB/5TB/6TB
		3.5" SAS 7.2K 6Gbs	1TB/2TB/3TB/4TB/
		3.5" SAS 7.2K 12Gbs	6TB
		2.5" SATA 7.2K 6Gbs	500GB/1TB
		2.5" SAS 10K 6Gbs	300GB/600GB/900GB/1.2TB
		2.5" SAS 15K 6Gbs	300GB/450GB/600GB
	SSD	2.5" SAS 12Gbs*	200GB/400GB/800GB
		2.5" SATA 6Gbs*	120GB/240GB/300GB/480GB/600GB/800GB
		PCIe 2.0 x8 SSD adapter	1.6TB/3.2TB
		M.2 SSD	80GB/120GB
	SD	SDHC flash card	8GB/32GB
Optical drive	None		
Tape drive bays	None		
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots		
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch		
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner		
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2		
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units		

Components	Specification
Power supply	Up to two redundant hot-swap 750 W ac or 1100 W ac or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	None
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 x 16 slots depending on the riser cards installed:
Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Note: Slot 1-8 are x8 wired. Full height and full length PCIe x16 slots is optional on 2.5" models only.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4XF0G45881 ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle
For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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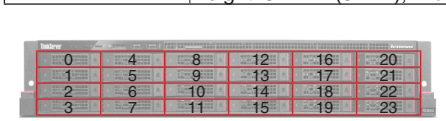
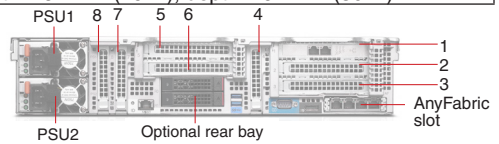
ThinkServer RD650 with 2.5" Disk Bay - TopSeller - 70DR (September 2014)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/ FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70DR000QUX	1xE5-2609 v3 6C/1.9GHz/ 15MB/85W/1600MHz	4XG0F28820	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	3/0	DVD±RW	No	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70DR000RUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	3/0	DVD±RW	No	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70DR000SUX	1xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	4XG0F28817	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	3/0	DVD±RW	No	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70DR000TUX	1xE5-2650 v3 10C/2.3GHz/ 25MB/105W/2133MHz	4XG0F28816	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	3/0	DVD±RW	No	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 510i and 720i on 8 x 2.5" model, 720ix on 8/16/24 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 8 (0-7), 16 (0-15) or 24 (0-23) 2.5" hot-swap disk drive bays. Up to 2 x 2.5" rear disk drive bays on 720ix models, hot-swap. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives, no front bay model with 110i or 8/16/24 x 2.5" model with 720ix only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter: 1.6TB/3.2TB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB Tape: LTO-6 SAS 6Gbs: 2.5TB *Note: Tape drive, rear disk drive, and M.2 SSD can not be supported simultaneously, only one device can be selected per system.*
Optical drive	Optional one Ultraslim optical drive on 8/16 x 2.5" model, DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive on 8 x 2.5" and 720ix model.
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 105W CPU with 24 DIMMs or 135W CPU with 16 DIMMs on 550 W and 16 x 2.5" model. 550 W is not supported on 24 x 2.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)





Expansion slots

Up to eight half-length PCIe 3.0 slots, or up to six PCIe 3.0 slots with two full size PCIe 3.0 x16 slots, depending on the riser cards and processors installed:

Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU

Slots 1 and 2 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height,
Slots 5 and 6 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height.

Note: 1. Slot 1-8 are x8 wired. 2. One full size PCIe 3.0 x16 slot model needs 1100 W or 1600 W PSU, two full size PCIe 3.0 x16 slots model needs 1600 W PSU. 3. Full size PCIe x16 slot is not available when tape drive is used.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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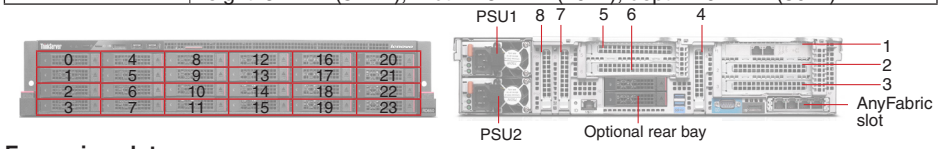
ThinkServer RD650 with 2.5" Disk Bay - TopSeller - 70DR (October 2014)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/ FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70DR002KUX	1xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	4XG0F28818	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	3/0	No	No	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70DR002LUX	2xE5-2630 v3 8C/2.4GHz/ 20MB/85W/1866MHz	-	2x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	6/0	No	No	No	TPM	No	TSM	No	3-year	1100Wx1 Platinum
70DR002MUX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28821	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	3/0	No	No	No	TPM	No	TSM	No	3-year	750Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 510i and 720i on 8 x 2.5" model, 720ix on 8/16/24 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 8 (0-7), 16 (0-15) or 24 (0-23) 2.5" hot-swap disk drive bays. Up to 2 x 2.5" rear disk drive bays on 720ix models, hot-swap. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives, no front bay model with 110i or 8/16/24 x 2.5" model with 720ix only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter: 1.6TB/3.2TB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB Tape: LTO-6 SAS 6Gbs: 2.5TB *Note: Tape drive, rear disk drive, and M.2 SSD can not be supported simultaneously, only one device can be selected per system.*
Optical drive	Optional one Ultraslim optical drive on 8/16 x 2.5" model, DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive on 8 x 2.5" and 720ix model.
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 105W CPU with 24 DIMMs or 135W CPU with 16 DIMMs on 550 W and 16 x 2.5" model. 550 W is not supported on 24 x 2.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 slots, or up to six PCIe 3.0 slots with two full size PCIe 3.0 x16 slots, depending on the riser cards and processors installed:

Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slots 1 and 2 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height,
Slots 5 and 6 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height.

Note: 1. Slot 1-8 are x8 wired. 2. One full size PCIe 3.0 x16 slot model needs 1100 W or 1600 W PSU, two full size PCIe 3.0 x16 slots model needs 1600 W PSU. 3. Full size PCIe x16 slot is not available when tape drive is used.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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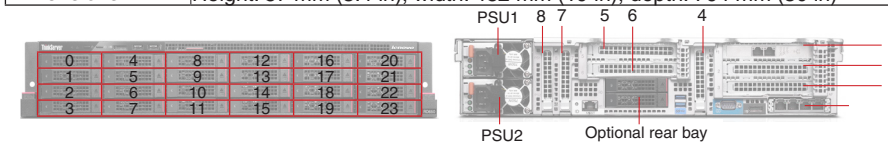
ThinkServer RD650 with 2.5" Disk Bay - TopSeller - 70DR (February 2015)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk Bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Tape drive	Slots (HL/FHFL)	Optical	AnyFabric	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Power
70DR002SUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	1x8GB 2133MHz RDIMM	510i	8x2.5" HS	Open	No	No	No	3/0	No	No	TPM	No	TSM	No	750Wx1 Platinum
70DR002RUX	1xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	4XG0F28819	2x8GB 2133MHz RDIMM	720i+1GB RAM	8x2.5" HS	2x300GB 2.5" SAS6Gbs 10K	No	No	No	3/0	No	GbEx4 RJ-45	TPM	No	TSM Premium	No	750Wx2 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 510i and 720i on 8 x 2.5" model, 720ix on 8/16/24 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 8 (0-7), 16 (0-15) or 24 (0-23) 2.5" hot-swap disk drive bays. Up to 2 x 2.5" rear disk drive bays on 720ix models, hot-swap. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives, no front bay model with 110i or 8/16/24 x 2.5" model with 720ix only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter: 1.6TB/3.2TB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB Tape: LTO-6 SAS 6Gbs: 2.5TB *Note: Tape drive, rear disk drive, and M.2 SSD can not be supported simultaneously, only one device can be selected per system.*
Optical drive	Optional one Ultraslim optical drive on 8/16 x 2.5" model, DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive on 8 x 2.5" and 720ix model.
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 105W CPU with 24 DIMMs or 135W CPU with 16 DIMMs on 550 W and 16 x 2.5" model. 550 W is not supported on 24 x 2.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 slots, or up to six PCIe 3.0 slots with two full size PCIe 3.0 x16 slots, depending on the riser cards and processors installed:

Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slots 1 and 2 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height,
Slots 5 and 6 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height.

Note: 1. Slot 1-8 are x8 wired. 2. One full size PCIe 3.0 x16 slot model needs 1100 W or 1600 W PSU, two full size PCIe 3.0 x16 slots model needs 1600 W PSU. 3. Full size PCIe x16 slot is not available when tape drive is used.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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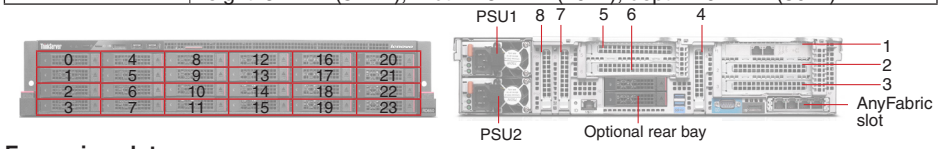
ThinkServer RD650 with 2.5" Disk Bay - TopSeller - 70DT (October 2014)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70DT000CUX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28821	1x8GB 2133MHz RDIMM	720ix +1GB Flash	16x2.5" HS	Open	No	No	0/0	No	No	No	TPM	No	TSM	No	3-year	750Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 510i and 720i on 8 x 2.5" model, 720ix on 8/16/24 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 8 (0-7), 16 (0-15) or 24 (0-23) 2.5" hot-swap disk drive bays. Up to 2 x 2.5" rear disk drive bays on 720ix models, hot-swap. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives, no front bay model with 110i or 8/16/24 x 2.5" model with 720ix only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter: 1.6TB/3.2TB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB Tape: LTO-6 SAS 6Gbs: 2.5TB *Note: Tape drive, rear disk drive, and M.2 SSD can not be supported simultaneously, only one device can be selected per system.*
Optical drive	Optional one Ultraslim optical drive on 8/16 x 2.5" model, DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive on 8 x 2.5" and 720ix model.
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 105W CPU with 24 DIMMs or 135W CPU with 16 DIMMs on 550 W and 16 x 2.5" model. 550 W is not supported on 24 x 2.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)



Expansion slots

Up to eight half-length PCIe 3.0 slots, or up to six PCIe 3.0 slots with two full size PCIe 3.0 x16 slots, depending on the riser cards and processors installed:

Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU

Slots 1 and 2 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height,
Slots 5 and 6 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height.

Note: 1. Slot 1-8 are x8 wired. 2. One full size PCIe 3.0 x16 slot model needs 1100 W or 1600 W PSU, two full size PCIe 3.0 x16 slots model needs 1600 W PSU. 3. Full size PCIe x16 slot is not available when tape drive is used.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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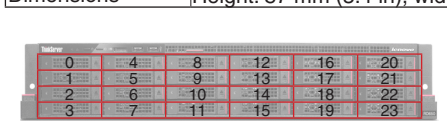
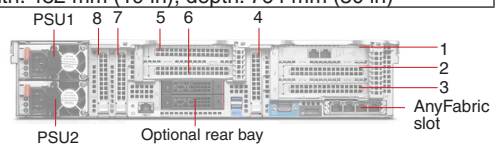
ThinkServer RD650 with 2.5" Disk Bay - TopSeller - 70D2 (October 2014)

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
70D20024UX	1xE5-2603 v3 6C/1.6GHz/ 15MB/85W/1600MHz	4XG0F28821	1x8GB 2133MHz RDIMM	720ix +1GB RAM	24x2.5" HS	Open	No	No	0/0	No	No	No	TPM	No	TSM	No	3-year	750Wx1 Platinum

Components	Specification
Form factor	2U rack
Processor	Up to two **145W Intel Xeon E5-2600 v3** family processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, up to 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	Supports AnyRAID 510i and 720i on 8 x 2.5" model, 720ix on 8/16/24 x 2.5" model. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have a cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. Also supports AnyRAID 110i on no front bay model, RAID 0 or 1
Disk drive bays	Up to 8 (0-7), 16 (0-15) or 24 (0-23) 2.5" hot-swap disk drive bays. Up to 2 x 2.5" rear disk drive bays on 720ix models, hot-swap. Rear bay supports SATA drives only
M.2 SSD	Optional M.2 module, supports up to 2 optional M.2 SSD drives, no front bay model with 110i or 8/16/24 x 2.5" model with 720ix only
SD module	Optional SD module, supports up to 2 optional SDHC flash cards
Internal storage	HDD: 2.5" SATA 7.2K 6Gbs - HS: 500GB/1TB HDD: 2.5" SAS 10K 6Gbs - HS: 300GB/600GB/900GB/1.2TB HDD: 2.5" SAS 15K 6Gbs - HS: 300GB/450GB/600GB SSD: 2.5" SAS 12Gbs - HS: 200GB/400GB/800GB SSD: 2.5" SATA 6Gbs - HS: 120GB/240GB/300GB/480GB/600GB/800GB SSD: PCIe 2.0 x8 SSD adapter: 1.6TB/3.2TB SSD: M.2 SSD: 80GB/120GB SD: SDHC flash card: 8GB/32GB Tape: LTO-6 SAS 6Gbs: 2.5TB *Note: Tape drive, rear disk drive, and M.2 SSD can not be supported simultaneously, only one device can be selected per system.*
Optical drive	Optional one Ultraslim optical drive on 8/16 x 2.5" model, DVD-ROM or DVD±RW
Tape drive bays	Supports up to one LTO-6 internal SAS tape drive on 8 x 2.5" and 720ix model.
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional Trusted Platform Module (TCG 1.2-compliant). Optional chassis intrusion switch
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner
Operating systems supported	Microsoft Windows Server 2012 R2, 2012, and 2008 R2, Windows Small Business Server 2011, Red Hat Enterprise Linux 6.5, SUSE Linux Enterprise Server 11, VMware vSphere (ESXi) 5.5 U2
Base warranty	3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units

Components	Specification
Power supply	Up to two redundant hot-swap 550 W ac, 750 W ac, 1100 W ac, or 1600 W ac power supplies. 550 W, 1100 W, and 1600 W are 80 PLUS Platinum qualified, 750 W is 80 PLUS Platinum or Titanium qualified. 750 W Titanium is 200V - 240V, others are 110V - 240V. 1600 W will automatically operate in 1100W if the system line input is 100-127V. Up to 105W CPU with 24 DIMMs or 135W CPU with 16 DIMMs on 550 W and 16 x 2.5" model. 550 W is not supported on 24 x 2.5" model
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on front, one DisplayPort on rear. Maximum resolution: 1920x1200@60Hz
Front ports	Two USB 2.0, one DisplayPort
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Hot-swap parts	Disk drives, power supplies, and fans
Noise emissions	Operating: < 6.5 Bels, Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing *Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/ redundant PSU/no FLFH card/no PCIe SSD adapter.*
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Dimensions	Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)





Expansion slots

Up to eight half-length PCIe 3.0 slots, or up to six PCIe 3.0 slots with two full size PCIe 3.0 x16 slots, depending on the riser cards and processors installed:

Slot 1 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1): PCIe 3.0 x 16, half length, full height
Slot 4 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2): PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard): PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU

Slots 1 and 2 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height,
Slots 5 and 6 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height.

Note: 1. Slot 1-8 are x8 wired. 2. One full size PCIe 3.0 x16 slot model needs 1100 W or 1600 W PSU, two full size PCIe 3.0 x16 slots model needs 1600 W PSU. 3. Full size PCIe x16 slot is not available when tape drive is used.

Core Options for ThinkServer RD650 (partial)

4X70F28589 ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X20F28577 Lenovo ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4XF0G45867 ThinkServer System Manager Premium (TSM Premium)
4X90F92980 ThinkServer DisplayPort to VGA Dongle

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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ThinkServer RD650 - Relationship

Type-model	Processor	2nd CPU	Memory	AnyRAID	Disk bays	Disk drives	M.2/SD module	PCIe x8 SSD adpr	Slots (HL/FHFL)	Optical	Tape drive	Discrete ethernet	TPM	Chassis intrusion switch	System mgmt	Preloaded OS	Base wty	Power
Announced September 2014																		
70D10000US	2xE5-2690 v3 12C/2.6GHz/ 30MB/135W/2133MHz	-	2x16GB 2133MHz RDIMM	AnyRAID720ix +4GB Flash	12x3.5" HS+ 2x2.5" HS	Front: 3x1TB 3.5" SAS 7.2K HS +3x2TB 3.5" SAS 7.2K HS +3x3TB 3.5" SAS 7.2K HS +3x4TB 3.5" SAS 7.2K HS Rear: 2x500GB 2.5" SATA 7.2K HS	No	1.6TB	8/0	None	None	16GbEx2 FC +10GbEx2 SFP+ +10GbEx2 RJ45	TPM	Switch	TSM Premium	2012R2 DC	1-year	750Wx2 Titanium
70D10007UX	2xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	-	8x16GB 2133MHz RDIMM	AnyRAID720ix +1GB RAM	12x3.5" HS	4x1TB 3.5" SATA 7.2K HS	No	No	8/0	None	None	Optional	No	No	TSM	No	3-year	1100Wx1 Platinum
70D30000US	2xE5-2680 v3 12C/2.5GHz/ 30MB/120W/2133MHz	-	24x8GB 2133MHz RDIMM	AnyRAID720ix +1GB Flash	24x2.5" HS	24x600GB 2.5" SAS 10K HS	No	1.6TB	4/2	None	None	8GbEx4 FC+GbEx2	TPM	Switch	TSM Premium	2012R2 DC	1-year	1600Wx2 Platinum
70D50000US	2xE5-2620 v3 6C/2.4GHz/ 15MB/85W/1866MHz	-	8x8GB 2133MHz RDIMM+8x16GB 2133MHz RDIMM	AnyRAID720ix +1GB Flash	6+9 HS	Front: 6x900GB 2.5" SAS 10K HS +9x1TB 3.5" SAS 7.2K HS Rear: 2x500GB 2.5" SATA 7.2K HS	No	1.6TB	8/0	None	None	10GbEx2 RJ45+GbEx2 RJ45+GbEx4 RJ45	TPM	No	TSM Premium	2012R2 ESS	1-year	1100Wx2 Platinum
70D50001UX	2xE5-2650 v3 10C/2.3GHz/ 25MB/105W/2133MHz	-	8x16GB 2133MHz RDIMM	AnyRAID720ix +1GB RAM	6+9 HS	4x240GB SATA SSD HS +6x2TB 3.5" SATA 7.2K HS	No	No	8/0	None	None	10GbEx2 RJ45	No	No	TSM	No	3-year	1100Wx1 Platinum
70DS0000US	2xE5-2660 v3 10C/2.6GHz/ 25MB/105W/2133MHz	-	4x16GB 2133MHz RDIMM+4x8GB 2133MHz RDIMM	AnyRAID510i +key	8x2.5" HS	4x300GB 2.5" SAS 10K HS +4x600GB 2.5" SAS 15K HS	No	3.2TB	8/0	DVD±RW	No	10GbEx4 SFP+ +40GbEx1 QSFP+	TPM	No	TSM Premium	2012R2 STD	1-year	550Wx2 Platinum
70DS0001UX	2xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	-	8x8GB 2133MHz RDIMM	AnyRAID720i +1GB RAM	8x2.5" HS	4x300GB 2.5" SAS 10K HS	No	No	8/0	DVD±RW	No	10GbEx2 RJ45	TPM	No	TSM Premium	No	3-year	1100Wx2 Platinum
70DU0000US	2xE5-2640 v3 8C/2.6GHz/ 20MB/90W/1866MHz	-	12x4GB 2133MHz RDIMM+12x8GB 2133MHz RDIMM	AnyRAID720ix +1GB RAM	16x2.5" HS	4x1.2TB 2.5" SAS 10K HS +4x300GB 2.5" SAS 10K HS +4x600GB 2.5" SAS 10K HS +4x900GB 2.5" SAS 10K HS	No	3.2TB	6/0	DVD	None	10GbEx2 SFP+ +10GbEx2 SFP+	TPM	Switch	TSM Premium	2012 STD	1-year	750Wx2 Platinum

For a list of all supported options, Please see *ThinkServer RD650 Options* sheet.

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ThinkServer RD650 Options

Partial list of accessories supported on ThinkServer RD650

Processors	
4XG0F28807	ThinkServer RD650 Intel Xeon E5-2699 v3 (18C, 145W, 2.3GHz) Processor Option Kit
4XG0F28808	ThinkServer RD650 Intel Xeon E5-2698 v3 (16C, 135W, 2.3GHz) Processor Option Kit
4XG0F28809	ThinkServer RD650 Intel Xeon E5-2697 v3 (14C, 145W, 2.6GHz) Processor Option Kit
4XG0F28810	ThinkServer RD650 Intel Xeon E5-2695 v3 (14C, 120W, 2.3GHz) Processor Option Kit
4XG0F28811	ThinkServer RD650 Intel Xeon E5-2690 v3 (12C, 135W, 2.6GHz) Processor Option Kit
4XG0F28812	ThinkServer RD650 Intel Xeon E5-2683 v3 (14C, 120W, 2.0GHz) Processor Option Kit
4XG0F28813	ThinkServer RD650 Intel Xeon E5-2680 v3 (12C, 120W, 2.5GHz) Processor Option Kit
4XG0F28814	ThinkServer RD650 Intel Xeon E5-2670 v3 (12C, 120W, 2.3GHz) Processor Option Kit
4XG0F28815	ThinkServer RD650 Intel Xeon E5-2660 v3 (10C, 105W, 2.6GHz) Processor Option Kit
4XG0F28816	ThinkServer RD650 Intel Xeon E5-2650 v3 (10C, 105W, 2.3GHz) Processor Option Kit
4XG0F28817	ThinkServer RD650 Intel Xeon E5-2640 v3 (8C, 90W, 2.6GHz) Processor Option Kit
4XG0F28818	ThinkServer RD650 Intel Xeon E5-2630 v3 (8C, 85W, 2.4GHz) Processor Option Kit
4XG0F28819	ThinkServer RD650 Intel Xeon E5-2620 v3 (6C, 85W, 2.4GHz) Processor Option Kit
4XG0F28820	ThinkServer RD650 Intel Xeon E5-2609 v3 (6C, 85W, 1.9GHz) Processor Option Kit
4XG0F28821	ThinkServer RD650 Intel Xeon E5-2603 v3 (6C, 85W, 1.6GHz) Processor Option Kit
4XG0F28822	ThinkServer RD650 Intel Xeon E5-2650L v3 (12C, 65W, 1.8GHz) Processor Option Kit
4XG0F28823	ThinkServer RD650 Intel Xeon E5-2630L v3 (8C, 55W, 1.8GHz) Processor Option Kit
4XG0F28834	ThinkServer RD650 Intel Xeon E5-2667 v3 (8C, 135W, 3.2GHz) Processor Option Kit
4XG0F28835	ThinkServer RD650 Intel Xeon E5-2643 v3 (6C, 135W, 3.4GHz) Processor Option Kit
4XG0F28836	ThinkServer RD650 Intel Xeon E5-2637 v3 (4C, 135W, 3.5GHz) Processor Option Kit
4XG0F28837	ThinkServer RD650 Intel Xeon E5-2623 v3 (4C, 105W, 3.0GHz) Processor Option Kit
4XG0F28838	ThinkServer RD650 Intel Xeon E5-2685 v3 (12C, 120W, 2.6GHz) Processor Option Kit
Memory	
4X70F28588	ThinkServer 4GB DDR4-2133MHz (1Rx8) RDIMM
4X70F28589	ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM
4X70F28590	ThinkServer 16GB DDR4-2133MHz (2Rx4) RDIMM
4X70F28591	ThinkServer 32GB DDR4-2133MHz (4Rx4) LRDIMM
Drives - 3.5"	
3.5" Hot Swap SATA Hard Drives	
4XB0F28712	ThinkServer Gen 5 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0F28713	ThinkServer Gen 5 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0F28714	ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45715	ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
3.5" Hot Swap 7.2K SAS Hard Drives	
4XB0G45716	ThinkServer Gen 5 3.5" 1TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45717	ThinkServer Gen 5 3.5" 2TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45718	ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45719	ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps Hot Swap Hard Drive
3.5" Hot Swap SATA Solid State Drives	
4XB0G45742	ThinkServer Gen 5 3.5" 120GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45743	ThinkServer Gen 5 3.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45744	ThinkServer Gen 5 3.5" 300GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45745	ThinkServer Gen 5 3.5" 480GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45746	ThinkServer Gen 5 3.5" 600GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45747	ThinkServer Gen 5 3.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
3.5" Hot Swap SAS Solid State Drives	
4XB0G45733	ThinkServer Gen 5 3.5" 200GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45734	ThinkServer Gen 5 3.5" 400GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
4XB0G45735	ThinkServer Gen 5 3.5" 800GB Enterprise Performance SAS 12Gbps Hot Swap Solid State Drive
Drives - 2.5"	
2.5" Hot Swap SATA Hard Drives	
4XB0G45720	ThinkServer Gen 5 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
4XB0G45721	ThinkServer Gen 5 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive
2.5" Hot Swap 10K SAS Hard Drives	
4XB0G45722	ThinkServer Gen 5 2.5" 300GB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45723	ThinkServer Gen 5 2.5" 600GB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45724	ThinkServer Gen 5 2.5" 900GB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45725	ThinkServer Gen 5 2.5" 1.2TB 10K Enterprise SAS 6Gbps Hot Swap Hard Drive
2.5" Hot Swap 15K SAS Hard Drives	
4XB0G45726	ThinkServer Gen 5 2.5" 146GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45727	ThinkServer Gen 5 2.5" 300GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45728	ThinkServer Gen 5 2.5" 450GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
4XB0G45729	ThinkServer Gen 5 2.5" 600GB 15K Enterprise SAS 6Gbps Hot Swap Hard Drive
2.5" Hot Swap SATA Solid State Drives	
4XB0G45736	ThinkServer Gen 5 2.5" 120GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45737	ThinkServer Gen 5 2.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45738	ThinkServer Gen 5 2.5" 300GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45739	ThinkServer Gen 5 2.5" 480GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45740	ThinkServer Gen 5 2.5" 600GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive
4XB0G45741	ThinkServer Gen 5 2.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap Solid State Drive

PCIe Solid State Drives	
4XB0F28661	ThinkServer 1.6TB ioMemory SX300 Performance PCIe 2.0 Solid State Drive by FusionIO
4XB0F28662	ThinkServer 3.2TB ioMemory SX300 Performance PCIe 2.0 Solid State Drive by FusionIO
AnyRAID	
4XB0F28690	ThinkServer RAID 110i RAID 5 Upgrade
4XB0F28691	ThinkServer RAID 510i AnyRAID Adapter
4XB0F28692	ThinkServer RAID 510i RAID 5 Upgrade
4XB0F28693	ThinkServer RAID 720i AnyRAID Adapter
4XB0F28694	ThinkServer RAID 720ix AnyRAID Adapter with Expander
4XB0F28695	ThinkServer RAID 720i 1GB Modular DRAM Upgrade
4XB0F28696	ThinkServer RAID 720i 1GB Modular Flash and Supercapacitor Upgrade
4XB0F28697	ThinkServer RAID 720i 2GB Modular Flash and Supercapacitor Upgrade
4XB0F28698	ThinkServer RAID 720i 4GB Modular Flash and Supercapacitor Upgrade
Connectivity & Host Bus Adapters	
PCIe Ethernet Adapters - 1Gbps	
4XC0F28730	ThinkServer I350-T2 PCIe 1Gb 2 Port Base-T Ethernet Adapter by Intel
4XC0F28731	ThinkServer I350-T4 PCIe 1Gb 4 Port Base-T Ethernet Adapter by Intel
PCIe Converged Network Adapters - 10Gpbs	
4XC0F28732	ThinkServer X540-T2 PCIe 10Gb 2 Port Base-T Ethernet Adapter by Intel
4XC0F28733	ThinkServer X520-SR2 PCIe 10Gb 2 Port SFP+ Ethernet Adapter by Intel
4XC0F28734	ThinkServer X520-DA2 PCIe 10Gb 2 Port SFP+ Ethernet Adapter by Intel
4XC0F28735	ThinkServer 10Gb SR Optical Module by Intel
4XC0F28736	ThinkServer OCe14102-UX-L PCIe 10Gb 2 Port SFP+ Converged Network Adapter by Emulex
4XC0F28737	ThinkServer 10Gb SR Optical Module by Emulex
PCIe Converged Network Adapters - 40Gpbs	
4XC0F28738	ThinkServer OCe14401-UX-L PCIe 40Gb 1 Port QSFP+ Converged Network Adapter by Emulex
4XC0F28739	ThinkServer 40Gb SR Optical Module by Emulex
PCIe Fibre Channel Adapters	
4XB0F28704	ThinkServer LPe16002B-M8-L PCIe 8Gb 2 Port Fibre Channel Adapter by Emulex
4XB0F28705	ThinkServer LPe16002B-M6-L PCIe 16Gb 2 Port Fibre Channel Adapter by Emulex
4XC0F28745	ThinkServer QLE2672 PCIe 16Gb 2 Port Fibre Channel Adapter by Qlogic
SAS Controllers & Upgrades	
4XB0F28699	ThinkServer 9286CV-8e PCIe 6Gb 8 Port External SAS RAID Adapter by LSI
4XB0F28700	ThinkServer CacheVault Data Protection Upgrade
4XB0F28701	ThinkServer RAID FastPath Key
4XB0F28702	ThinkServer RAID CacheCade Pro 2.0 Key
Backup Options	
4XF0G45866	ThinkServer LTO-6 Linear Tape Drive Kit by Tandberg
4XB0F28689	ThinkServer 2.5TB SAS 6Gbps LTO-6 Tape
Redundant Power Supply	
4X20F28575	ThinkServer Gen 5 750W Platinum Hot Swap Power Supply
4X20F28576	ThinkServer Gen 5 750W Titanium Hot Swap Power Supply
4X20F28577	ThinkServer Gen 5 1100W Platinum Hot Swap Power Supply
4X20F28578	ThinkServer Gen 5 1600W Platinum Hot Swap Power Supply
System Options	
4XF0G45872	ThinkServer Gen 5 2U 4-Post Slide Rail Kit
4XF0G45875	ThinkServer Gen 5 2U Cable Management Arm
4XF0G45881	ThinkServer 2U x8/x8/x8 PCIe Riser Kit
4XF0G45883	ThinkServer Gen 5 2U 2.5" 8-Drive Backplane Kit
4XF0G45884	ThinkServer Gen 5 2U 2.5" 16-Drive Backplane Kit
4XF0G45873	ThinkServer Gen 5 4-Post Static Rail Kit
4XF0G45877	ThinkServer Gen 5 2.5" 2-Drive Rear Backplane Kit
4X90F92980	ThinkServer Gen 5 DisplayPort to VGA Dongle
4XF0G45876	ThinkServer Gen 5 Cable Management Bar
4X90F92964	ThinkServer C13-C14 WW 250V 10A 1.8m Jumper Cord
4XA0E97775	ThinkPad Ultraslim USB DVD Burner
Microsoft Windows Server ROK	
4XI0E51561	Windows Server 2012 R2 Standard ROK (2 CPU/2VMs)
4XI0E51562	Windows Server 2012 R2 Datacenter ROK (2 CPU)
4XI0E51563	Windows Server 2012 R2 Essentials ROK (1-2 CPU)

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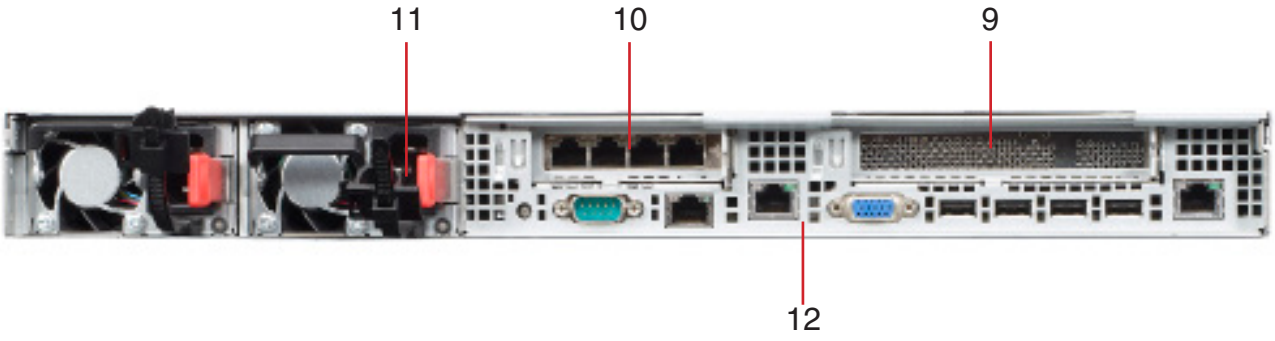
ThinkServer RD540 Overview - Front and Rear

ThinkServer RD540 with 4x3.5" Disk Drive Bays

ThinkServer RD540 with 8x2.5" Disk Drive Bays



Front View

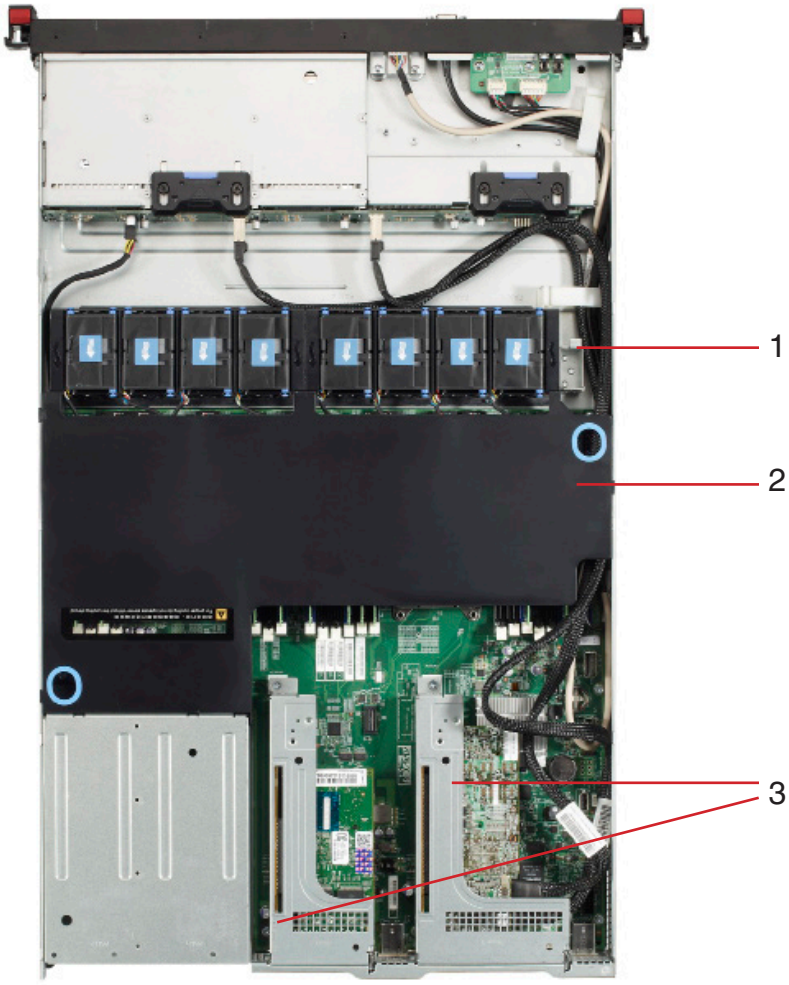
1. Hot-swap disk drive bays
2. Power Button with LED
3. ID button with LED
4. 2 Network interface status LEDs
5. 2 USB 2.0
6. Intelligent Diagnostics Module (optional)
7. Optical (optional, for 3.5" disk drive bay model)
8. VGA (for 2.5" disk drive bay model)

Rear View

9. PCI Express slots 1*
10. PCI Express slots 2*
11. Hot-swap power supplies
12. Rear ports:
    4 USB 2.0
    1 serial
    2 ethernet
    1 RJ-45 (dedicate/share mgmt)
    1 VGA

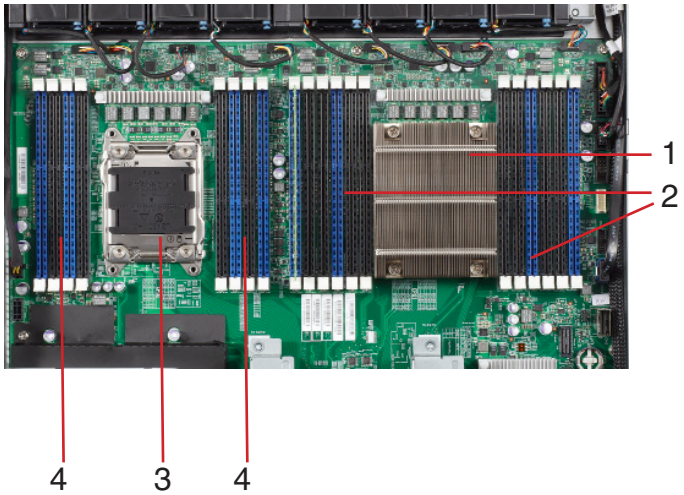
*Adapters are optional

ThinkServer RD540 Overview - Internal



Internal View

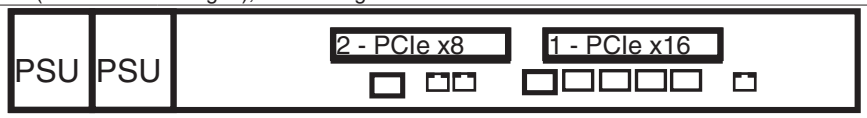
1. Non-hot swap cooling fans
2. Processors and memory DIMM sockets (under cooling shroud, see below)
3. PCI Express slots (*Adapters are optional)



Processors and Memory DIMM Sockets (under cooling shroud)

1. CPU 1
2. 12 Memory DIMM sockets for CPU 1
3. CPU 2 (optional)
4. 8 Memory DIMM sockets for CPU 2 (for dual processors model)

ThinkServer RD540 Platform Specifications

<table>
<tr><th>Components</th><th colspan="2">Specifications</th></tr>
<tr><td>Chipset</td><td colspan="2">Intel C602J Chipset</td></tr>
<tr><td>Mechanical</td><td colspan="2">• 1U rack
• 19"W x 28.9"D x 1.72"H (with rack handles)
• 482.4mm W x 734mm D x 43.6mm H (with rack handles)
• 17kg (37.5 lb) when fully configured</td></tr>
<tr><td>Front ports</td><td colspan="2">Two USB 2.0, one analog VGA DB-15 connector (for 8x2.5" disk bays models)</td></tr>
<tr><td>Rear ports</td><td colspan="2">Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td colspan="2"> 

Two PCI-Express slots via two riser cards, riser card 1 for slot 1, riser card 2 for slot 2
Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8</td></tr>
<tr><td>Graphics</td><td colspan="2">Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front (for 8x2.5" disk bays models),
one VGA DB-15 on rear; Maximum resolution: 1920x1200@60Hz</td></tr>
<tr><td>Hot-swap parts</td><td colspan="2">Disk drives, power supplies</td></tr>
<tr><td rowspan="11">Safety, environment, and certifications</td><td>Environmental certifications</td><td>• Energy Star Server 2.0 qualified
• RoHS-compliant</td></tr>
<tr><td>EMC</td><td>FCC Class A, CSA CE</td></tr>
<tr><td>240VA</td><td>Supports</td></tr>
<tr><td>Temperature - operating</td><td>50 °F to 95 °F (10 °C to 35 °C)</td></tr>
<tr><td>Temperature - non operating (no package)</td><td>-10 °C to 60 °C</td></tr>
<tr><td>Temperature - non operating (with package)</td><td>-40 °C to 70 °C</td></tr>
<tr><td>Altitude - operating</td><td>Supported Altitude (unpressurized): 0-10000ft (0-3048m)</td></tr>
<tr><td>Humidity - operating</td><td>8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (no package)</td><td>8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (with package)</td><td>8%~90%, non-condensing</td></tr>
<tr><td>Acoustic noise (idle/working mode)</td><td>
<table>
<tr><th>Category</th><th>Normal Configuration</th><th>High Performance Configuration</th></tr>
<tr><td>CPU</td><td>1</td><td>2</td></tr>
<tr><td>HDD</td><td>2x 900GB 2.5" SAS 6Gb/s</td><td>8x 900GB 2.5" SAS 6Gb/s</td></tr>
<tr><td>Memory</td><td>1x 8GB 1600MHz LVRDIMM</td><td>20x 8GB 1600MHz LVRDIMM</td></tr>
<tr><td>PCIe adapters</td><td>I350</td><td>I350</td></tr>
<tr><td>PSU</td><td>1x 800W</td><td>2x 800W</td></tr>
<tr><td>RAID</td><td>RAID 700 adapter</td><td>RAID 700 adapter</td></tr>
<tr><td>Sound Pressure (operating)</td><td>38.6 dB(A)</td><td>38.7 dB(A)</td></tr>
<tr><td>Sound Pressure (idle)</td><td>39.0 dB(A)</td><td>40.0 dB(A)</td></tr>
</table>
</td></tr>
</table>

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ThinkServer RD540 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	Two LGA2011 sockets, supports up to two processors from Intel **Xeon E5-2600** or **Xeon E5-2600 v2** families, up to 8 cores (E5-2600 series)/12 cores (E5-2600 v2 series), two QPI links up to 8.0GT/s each, up to 20MB (E5-2600 series)/30MB (E5-2600 v2 series) cache, integrated 4-channel DDR3 memory controller up to 1600MHz (E5-2600 series)/1866MHz (E5-2600 v2 series). The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2600 Series									
Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430
Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431
Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435
Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432
Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462
Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434
Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433
Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440
Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436
Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439
Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437
Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438
Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441
Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442
Intel Xeon E5-2600 v2 Series									
Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546
Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547
Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548
Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549
Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550
Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553
Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551
Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552
Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554
Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555
Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558
Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556
Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557
Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559
Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMM sockets	twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory capacity	Up to 320GB (16GBx20)
Memory protection	ECC, memory mirroring, memory sparing

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

Notes:
- *Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs*
- *By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting*
- *When using Intel Xeon E5-2600 series processors, LV RIMM is needed to run at 1.5V to support all 20 memory DIMM sockets. If LV RIMM runs at 1.35V, only 16 memory DIMM sockets are functional (8 of 12 for CPU 1, 8 for CPU 2)*

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ThinkServer RD540 Optional Configurations - Storage and RAID

Disk drive bays

Supports one of the following configurations:
- 8 x 3.5" SAS/SATA disk drive bays
- 8 x 2.5" SAS/SATA disk drive bays
- 16 x 2.5" SAS/SATA disk drive bays

Disk drive options

Disk drive options	Part Number
Hot-swap Disk drive for 3.5" bay	
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2618
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573
Hot-swap Disk drive for 2.5" bay	
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID support

RAID adapter	RAID support	Device Support	Cache	Host bus type	Data transfer rates (per port)	Optional upgrades
ThinkServer RAID 500 (LSI® SAS 9240-8i)	0, 1, 10	SAS/SATA		PCI Express	6Gb/s	optional upgrade key, add RAID 5, 50 support
ThinkServer RAID 700 (LSI SAS 9260-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	512MB	PCI Express	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
ThinkServer RAID 710 (LSI SAS 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	1GB	PCI Express	6Gb/s	• optional CacheVault flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID 710 Super Capacitor Module (CacheVault)	0C19490
ThinkServer RAID 710 FastPath Software Key	0C19491
ThinkServer RAID 710 CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD540 Optional Configurations - Network, System Management, Power Supply

Network options	Network and HBA options	Part Number
	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
	HBA	
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
Security options	Trusted Platform Module options	Part Number
	ThinkServer Trusted Platform Module	0A89428
Systems management options for iKVM	System Management options	Part Number
	ThinkServer Management Module Premium	67Y2624
Power supply options	Power supply options	Part Number
	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack	4X20E54690

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ThinkServer RD540 Services Upgrade Options

Partial list of Lenovo Services for ThinkServer RD540 with 3-year onsite base warranty models
For more information see: **http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html**

Upgrade Service Description	Part Number
Warranty	
3YR Onsite 24x7x4 Hour Response	5WS0F15458
3YR Onsite 24x7x8 Hour Response	5WS0F15392
3YR Onsite 9x5x4 Hour Response	5WS0F15355
4YR Onsite 24x7x4 Hour Response	5WS0F15443
4YR Onsite 24x7x8 Hour Response	5WS0F15395
4YR Onsite 9x5x4 Hour Response	5WS0F15394
4YR Onsite NBD	5WS0F15415
5YR Onsite 24x7x4 Hour Response	5WS0F15377
5YR Onsite 24x7x8 Hour Response	5WS0F15440
5YR Onsite 9x5x4 Hour Response	5WS0F15430
5YR Onsite NBD	5WS0F15419
Keep Your Drive (KYD) Service	
3YR Keep Your Drive	5PS0F15436
3YR Onsite 24x7x4 Hour Response + KYD	5PS0F15376
3YR Onsite 24x7x8 Hour Response + KYD	5PS0F15349
3YR Onsite 9x5x4 Hour Response + KYD	5PS0F15448
4YR Onsite 24x7x4 Hour Response + KYD	5PS0F15389
4YR Onsite 24x7x8 Hour Response + KYD	5PS0F15359
4YR Onsite 9x5x4 Hour Response + KYD	5PS0F15456
4YR Onsite NBD + KYD	5PS0F15459
5YR Onsite 24x7x4 Hour Response + KYD	5PS0F15402
5YR Onsite 24x7x8 Hour Response + KYD	5PS0F15381
5YR Onsite 9x5x4 Hour Response + KYD	5PS0F15366
5YR Onsite NBD + KYD	5PS0F15391
Priority Technical Support	
3YR KYD + Priority Support	5PS0F15417
3YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15352
3YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15399
3YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15444
3YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15418
3YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15398
3YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15468
3YR Priority Support	5WS0E76471
4YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15462
4YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15410
4YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15433
4YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15425
4YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15400
4YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15351
4YR Onsite NBD + KYD + Priority Support	5PS0F15373
4YR Onsite NBD + Priority Support	5WS0F15401
4YR Priority Support	5WS0E77170
5YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15350
5YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15412
5YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15471
5YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15447
5YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15437
5YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15382
5YR Onsite NBD + KYD + Priority Support	5PS0F15388
5YR Onsite NBD + Priority Support	5WS0F15463
5YR Priority Support	5WS0E77173
Post Warranty	
1YR Onsite 24x7x4 Hour Response	5WS0F15435
1YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15370
1YR Onsite 24x7x8 Hour Response	5WS0F15427
1YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15361
1YR Onsite 9x5x4 Hour Response	5WS0F15416
1YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15348
1YR Onsite NBD	5WS0F15407
1YR Onsite NBD + Priority Support	5WS0F15465
TopSeller Priority (TopSeller models only)	
3YR Onsite 24x7x4 Hour Response	5WS0D73789
3YR Onsite 9x5x4 Hour Response	5WS0D73787
4YR Onsite 24x7x4 Hour Response	5WS0D73792
4YR Onsite 9x5x4 Hour Response	5WS0D73791
4YR Onsite NBD	5WS0F15470
3YR Onsite 24x7x4 Hour Response+Priority Support	5WS0F15414
3YR Onsite 9x5x4 Hour Response+Priority Support	5WS0F15423
3YR Priority Support	5WS0E76457
4YR Priority Support	5WS0E76482

Note:

24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window
(requires Location Activation)

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
- Best coverage for business critical work loads

9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window
(requires Location Activation)

- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.

24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window
(requires Location Activation)

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.

Priority Technical Support

Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.

Keep Your Drive (KYD) Service

Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.

To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool:
http://www.lenovo.com/services_warranty/us/en/locator.html
Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

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ThinkServer RD540 (70AT) - TopSeller

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AT0004UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID710	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT0008UX	1xE5-2603 v2 4C/1.8GHz/ 10MB/1333MHz	4GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT0009UX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT000BUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT000CUX	1xE5-2650L v2 10C/1.7GHz/ 25MB/1600MHz	8GBx1	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT000AUX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AT0006UX	2xE5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	16Gx4	4x3.5"	RAID700 +Battery	3x500GB 3.5" SATA(RAID5)	DVD	No	iKVM	350T4	Cable	800Wx2	No	1
70AT0005US	2xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	4GBx20	4x3.5"	RAID710 +CacheVault +CacheCade	2x400GB SSD(cache,RAID1) +2x3TB 3.5" SAS (RAID1)	DVD±RW	No	iKVM	X520SR2	Cable	800Wx2	Standard	1

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

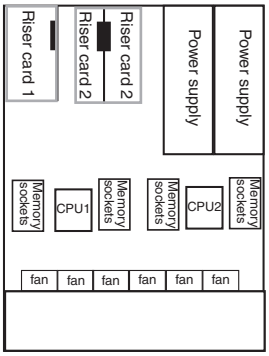
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID adapter table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see *ThinkServer RD540 Platform Specifications*

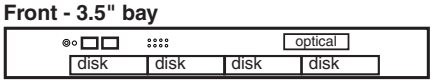
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

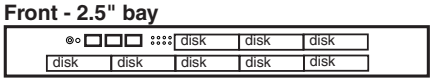
2U Rack top



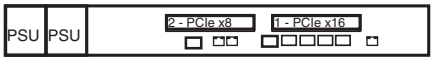
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AT) - TopSeller (August 2014)

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AT000UUX	Xeon E5-2630 v2 6C/2.6GHz/15MB/1600MHz	8GBx1 1600MHz	4x3.5"	RAID700	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

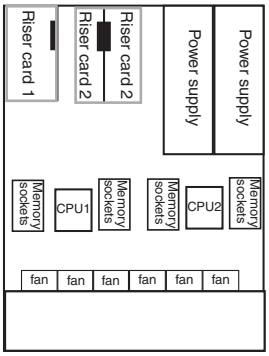
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

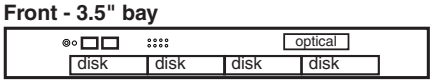
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

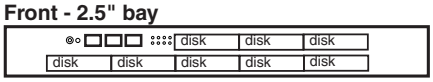
2U Rack top



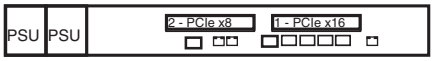
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AU) - TopSeller

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000CUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000SUX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000TUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000UUX	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000VUX	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3
70AU000WUX	1xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

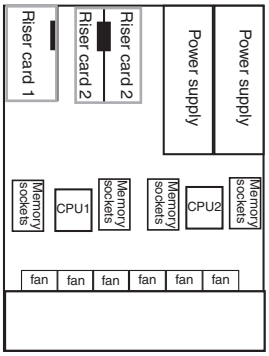
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

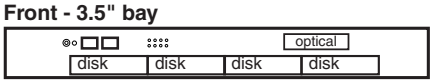
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

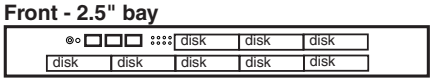
2U Rack top



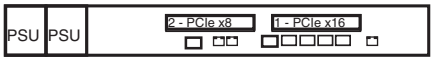
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AU) - TopSeller - II

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU000XUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID710 +CacheVault	Open	No	No	iKVM	No	No	800Wx2	No	3
70AU000YUX	1xE5-2670 v2 10C/2.5GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID710 +FastPath	Open	No	No	iKVM	No	No	800Wx2	No	3
70AU000FUX	2xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	4GBx2	8x2.5"	RAID700	2x500GB 2.5" SATA(RAID1)	No	No	IPMI	350T2	No	800Wx2	No	1
70AU000DUS	2xE5-2660 v2 10C/2.2GHz/ 25MB/1866MHz	8GBx20	8x2.5"	RAID500 +upgrade	2x300GB 2.5" SAS(RAID1) +6x300GB 2.5" SAS(RAID50)	No	No	iKVM	X520SR2	Cable	800Wx2	Standard	1
70AU000EUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	16Gx4	8x2.5"	RAID710 +FastPath	6x100GB SSD(RAID50)	No	No	IPMI	350T4	No	800Wx2	No	1

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

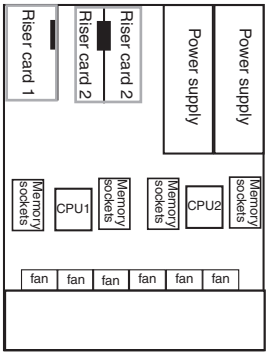
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant) *70AU000FUX does not included TPM, additional TPM option is needed*
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

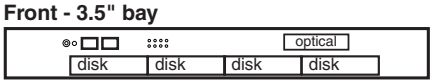
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

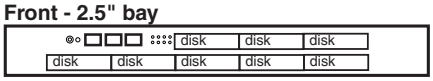
2U Rack top



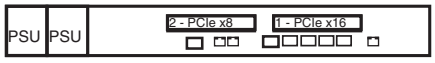
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AU) - TopSeller (August 2014)

Product Specifications Reference (PSREF)

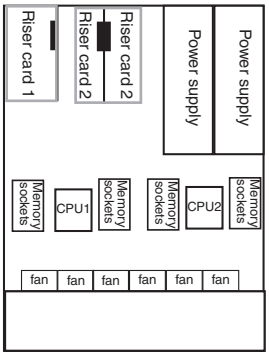
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AU0027UX	Xeon E5-2630 v2 6C/2.6GHz/15MB/1600MHz	8GBx1 1600MHz	8x2.5	RAID700	Open	No	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

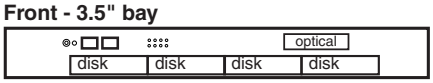
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	RAID 500 (LSI® 9240-8i): 0, 1, 10; 6Gb/s; optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i): 0, 1, 10, 5, 50, 6, 60; 512MB; 6Gb/s; optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i): 0, 1, 10, 5, 50, 6, 60; 1GB; 6Gb/s; • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives ** RAID 50 and 60 are supported on 8x2.5" disk bays models
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see ThinkServer RD540 Platform Specifications

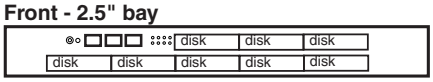
2U Rack top



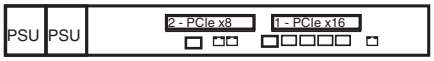
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AR)

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AR0000UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3
70AR0001UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	4x3.5"	RAID500	Open	DVD±RW	No	IPMI	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

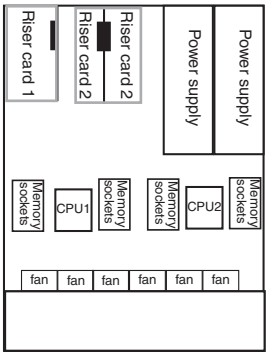
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see *ThinkServer RD540 Platform Specifications*

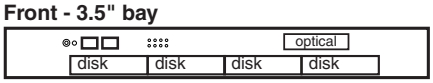
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

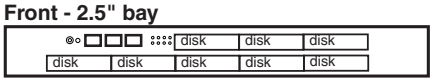
2U Rack top



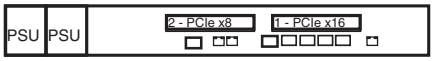
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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ThinkServer RD540 (70AS)

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AS0008UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID500	Open	No	No	IPMI	No	No	800Wx1	No	3
70AS000GUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	No	No	iKVM	No	No	800Wx1	No	3

1. Model in italics is Global 2. 8 x 2.5" disk bays models do not support optical bay, external USB optical is needed

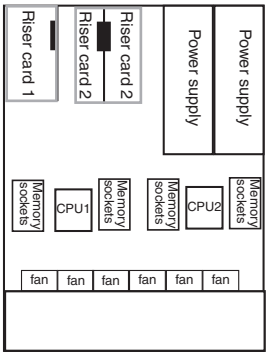
- ***For detailed platform specifications, please see ThinkServer RD540 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD540, please see ThinkServer RD540 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 4 x 3.5" or 8 x 2.5" disk drive bays
RAID support	See RAID table below
Optical (optional)	4x3.5" bay models: one DVD±RW or DVD ROM, slim, SATA interface 8x2.5" bay models: no optical bay, use optional external USB optical
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM on selected models, IDM LED lights indicate failing component category,
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, see *ThinkServer RD540 Platform Specifications*

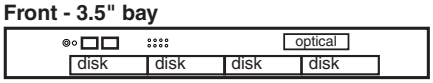
RAID adapter*	RAID support	Cache	Transfer rates	Optional upgrades
RAID 500 (LSI® 9240-8i)	0, 1, 10		6Gb/s	optional upgrade key, add RAID 5, 50 support
RAID 700 (LSI 9260-8i)	0, 1, 10, 5, 50, 6, 60	512MB	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
RAID 710 (LSI 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	1GB	6Gb/s	• optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key

* All RAID adapters supports SAS and SATA drives
** RAID 50 and 60 are supported on 8x2.5" disk bays models

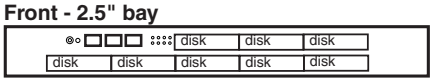
2U Rack top



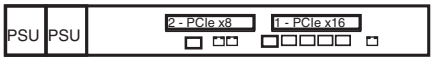
Front - 3.5" bay



Front - 2.5" bay



Rear



Front and Rear Ports

Front: 2 USB 2.0
1 VGA (for 8x2.5" disk bays models)
Rear: 4 USB 2.0
1 serial (9-pin)
2 ethernet (RJ-45)
1 RJ-45 (dedicate/share mgmt)
1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCI Express 3.0 x16
Slot 2: Low Profile, PCI Express 3.0 x8

Mechanical

- 1U rack
- 19"W x 28.9"D x 1.72"H (with rack handles)
- 482.4mm W x 734mm D x 43.6mm H (with rack handles)
- 17kg (37.5 lb) when fully configured

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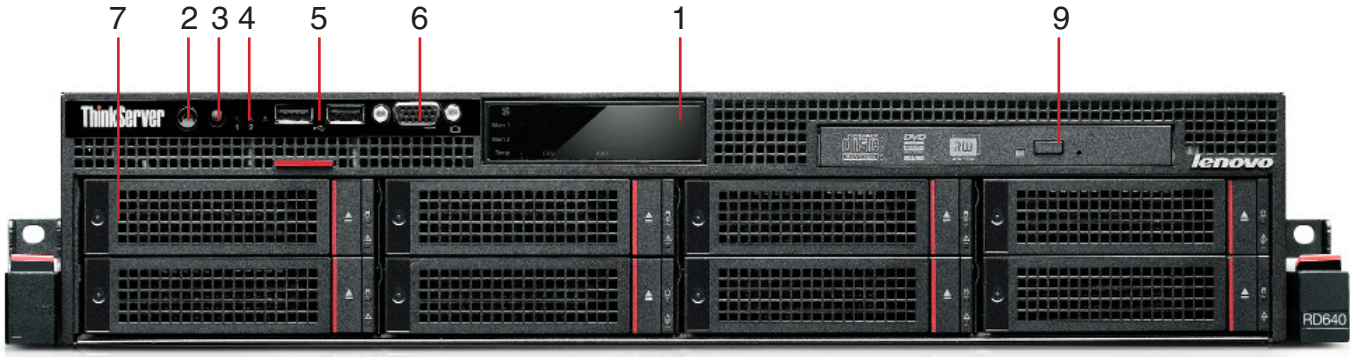
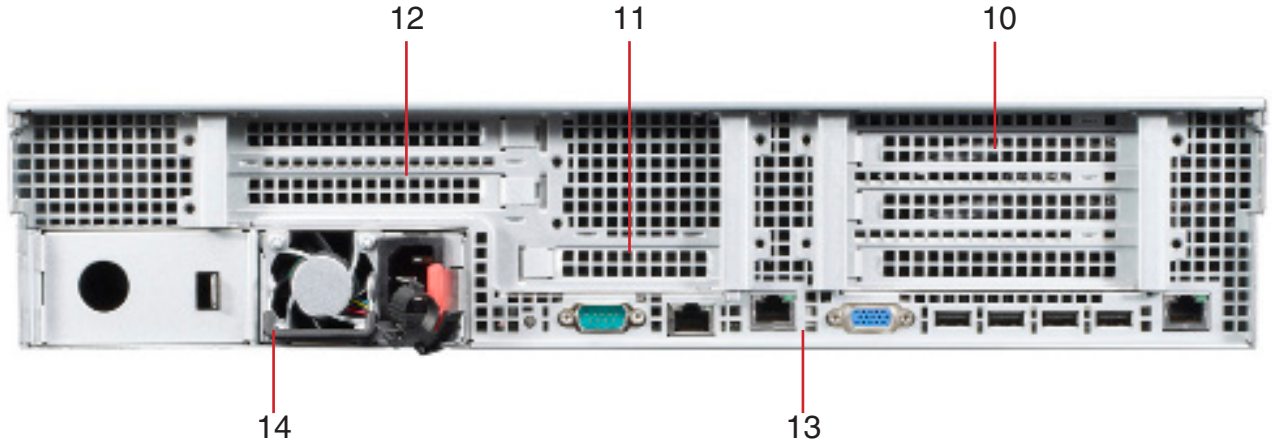
ThinkServer RD640 Overview - Front and Rear

ThinkServer RD640 with 8x2.5"/16x2.5" Disk Drive Bays



ThinkServer RD640 with 8x3.5" Disk Drive Bays



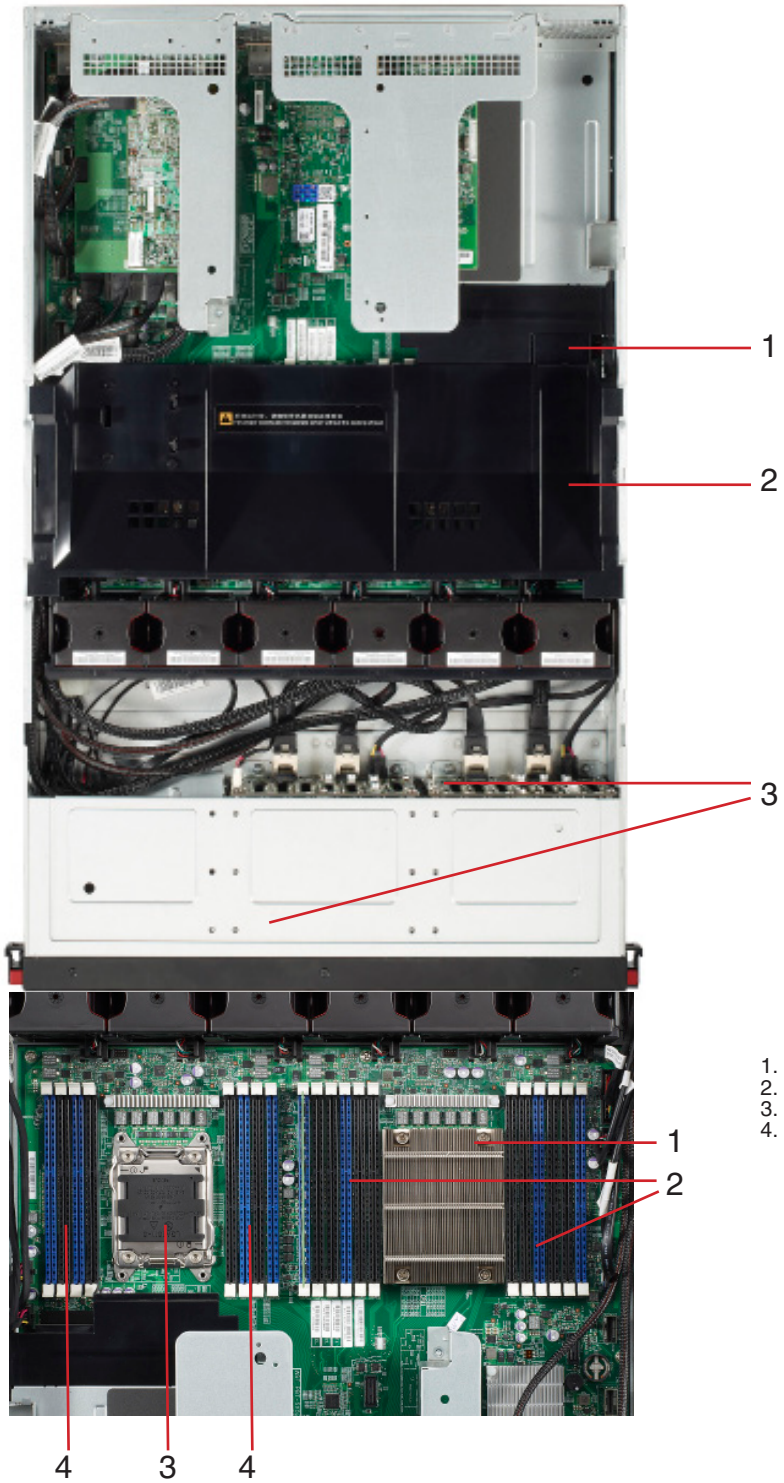
Front View

1. Intelligent Diagnostics Premium Module (optional)
2. Power Button with LED
3. ID button with LED
4. 2 Network interface status LEDs
5. 2 USB 2.0
6. 1 VGA
7. Hot-swap disk drive bays
8. Hot-swap disk drive bays for 16x2.5" hard drive bays model
9. Optical (optional)

Rear View

10. PCI Express slots 1-3
11. PCI Express slots 4
12. PCI Express slots 5-6 (for dual processors model)
13. Rear ports:
    4 USB 2.0
    1 serial
    2 ethernet
    1 RJ-45 (dedicate/share mgmt)
    1 VGA
14. Hot-swap power supplies

ThinkServer RD640 Overview - Internal



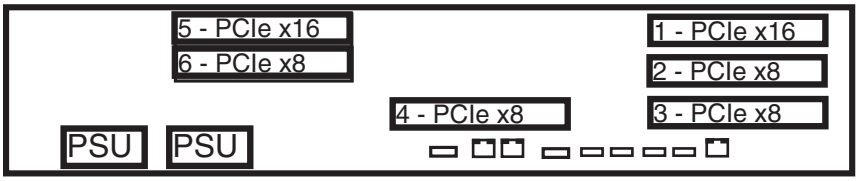
Internal View

1. Hot-swap cooling fans
2. Processors and memory DIMM sockets (under cooling shroud, see below)
3. PCI Express slots

Processors and Memory DIMM Sockets (under cooling shroud)

1. CPU 1
2. 12 Memory DIMM sockets for CPU 1
3. CPU 2 (optional)
4. 8 Memory DIMM sockets for CPU 2 (for dual processors model)

ThinkServer RD640 Platform Specifications

<table>
<tr><th>Components</th><th colspan="3">Specifications</th></tr>
<tr><td>Chipset</td><td colspan="3">Intel C602J Chipset</td></tr>
<tr><td>Mechanical</td><td colspan="3">• 2U rack with rail kit
• 19"W x 28.9"D x 3.45"H (with rack handles)
• 482.4mm W x 734mm D x 87.6mm H (with rack handles)
• 26.5 kg (58.42 lb) when fully configured</td></tr>
<tr><td>Front ports</td><td colspan="3">Two USB 2.0, one analog VGA DB-15 connector</td></tr>
<tr><td>Rear ports</td><td colspan="3">Four USB 2.0, one serial (9-pin), two ethernet (RJ-45),
one RJ-45 (dedicate/share mgmt), one analog VGA DB-15 connector</td></tr>
<tr><td>Expansion Slots</td><td colspan="3"> 

Up to six PCI-Express slots via two riser cards, riser card 1 for slot 1-3, riser card 2 for slot 4-6
Slot 1: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCI Express 3.0 x8
Slot 3: half-length, full-height, PCI Express 3.0 x8
Slot 4: Low Profile, PCI Express 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCI Express 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCI Express 3.0 x8</td></tr>
<tr><td>Graphics</td><td colspan="3">Onboard Aspeed AST2300 graphics/management processor, one VGA DB-15 on front, one VGA DB-15 on rear;
Maximum resolution: 1920x1200@60Hz</td></tr>
<tr><td>Hot-swap parts</td><td colspan="3">Disk drives, power supplies, and cooling fans</td></tr>
<tr><td rowspan="11">Safety, environment, and certifications</td><td>Environmental certifications</td><td colspan="2">• Energy Star Server 1.1 qualified
• RoHS-compliant</td></tr>
<tr><td>EMC</td><td colspan="2">FCC Class A, CSA CE</td></tr>
<tr><td>240VA</td><td colspan="2">Supports</td></tr>
<tr><td>Temperature - operating</td><td colspan="2">50 °F to 95 °F (10 °C to 35 °C)</td></tr>
<tr><td>Temperature - non operating (no package)</td><td colspan="2">-10 °C to 60 °C</td></tr>
<tr><td>Temperature - non operating (with package)</td><td colspan="2">-40 °C to 70 °C</td></tr>
<tr><td>Altitude - operating</td><td colspan="2">Supported Altitude (unpressurized): 0-10000ft (0-3048m)</td></tr>
<tr><td>Humidity - operating</td><td colspan="2">8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (no package)</td><td colspan="2">8%~80%, non-condensing</td></tr>
<tr><td>Humidity - non operating (with package)</td><td colspan="2">8%~90%, non-condensing</td></tr>
<tr><td>Acoustic noise (idle/working mode)</td><td colspan="2"><table>
<tr><th>Category</th><th>Normal Configuration</th><th>Best Configuration</th></tr>
<tr><td>CPU</td><td>1</td><td>2</td></tr>
<tr><td>HDD</td><td>2x 900GB 2.5" SAS 6Gb/s</td><td>16x 900GB 2.5" SAS 6Gb/s</td></tr>
<tr><td>Memory</td><td>1x 8GB 1600MHz LVRDIMM</td><td>20x 8GB 1600MHz LVRDIMM</td></tr>
<tr><td>PCIe adapters</td><td>I350
X520-DA2
Emulex LPe16002</td><td>I350
X520-DA2
Emulex LPe16002</td></tr>
<tr><td>PSU</td><td>1x 800W</td><td>2x 800W</td></tr>
<tr><td>RAID</td><td>RAID 700 adapter</td><td>RAID 700 adapter</td></tr>
<tr><td>Sound Pressure (operating)</td><td>44.1 dB(A)</td><td>42.91 dB(A)</td></tr>
<tr><td>Sound Pressure (idle)</td><td>44.4 dB(A)</td><td>43.8 dB(A)</td></tr>
</table></td></tr>
</table>

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ThinkServer RD640 Optional Configurations - Processor and Memory

Rack kit	Included in models
Processor	Two LGA2011 sockets, supports up to two processors from Intel **Xeon E5-2600** or **Xeon E5-2600 v2** families, up to 8 cores (E5-2600 series)/12 cores (E5-2600 v2 series), two QPI links up to 8.0GT/s each, up to 20MB (E5-2600 series)/30MB (E5-2600 v2 series) cache, integrated 4-channel DDR3 memory controller up to 1600MHz (E5-2600 series)/1866MHz (E5-2600 v2 series). The following processor options are available:

Processor Number	Processors Specifications*								Part Number
	# of Cores	# of Threads	Clock Speed	Max Turbo Frequency	Cache	QPI Speed	Max TDP	Memory Speed	
Intel Xeon E5-2600 Series									
Xeon E5-2690	8	16	2.9 GHz	3.8 GHz	20MB	8 GT/s	135 W	DDR3-1600	0A89429
Xeon E5-2680	8	16	2.7 GHz	3.5 GHz	20MB	8 GT/s	130 W	DDR3-1600	0A89430
Xeon E5-2670	8	16	2.6 GHz	3.3 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89431
Xeon E5-2667	6	12	2.9 GHz	3.5 GHz	15MB	8 GT/s	130 W	DDR3-1600	0A89435
Xeon E5-2665	8	16	2.4 GHz	3.1 GHz	20MB	8 GT/s	115 W	DDR3-1600	0A89432
Xeon E5-2660	8	16	2.2 GHz	3 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89462
Xeon E5-2650L	8	16	1.8 GHz	2.3 GHz	20MB	8 GT/s	70 W	DDR3-1600	0A89434
Xeon E5-2650	8	16	2 GHz	2.8 GHz	20MB	8 GT/s	95 W	DDR3-1600	0A89433
Xeon E5-2643	4	8	3.3 GHz	3.5 GHz	10MB	8 GT/s	130 W	DDR3-1600	0A89440
Xeon E5-2640	6	12	2.5 GHz	3 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89436
Xeon E5-2630L	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	60 W	DDR3-1333	0A89439
Xeon E5-2630	6	12	2.3 GHz	2.8 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89437
Xeon E5-2620	6	12	2 GHz	2.5 GHz	15MB	7.2 GT/s	95 W	DDR3-1333	0A89438
Xeon E5-2609	4	4	2.4 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89441
Xeon E5-2603	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1066	0A89442
Intel Xeon E5-2600 v2 Series									
Xeon E5-2697 v2	12	24	2.7 GHz	3.5 GHz	30MB	8 GT/s	130 W	DDR3-1866	0C19546
Xeon E5-2695 v2	12	24	2.4 GHz	3.2 GHz	30MB	8 GT/s	115 W	DDR3-1866	0C19547
Xeon E5-2690 v2	10	20	3 GHz	3.6 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19548
Xeon E5-2680 v2	10	20	2.8 GHz	3.6 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19549
Xeon E5-2670 v2	10	20	2.5 GHz	3.3 GHz	25MB	8 GT/s	115 W	DDR3-1866	0C19550
Xeon E5-2667 v2	8	16	3.3 GHz	4 GHz	25MB	8 GT/s	130 W	DDR3-1866	0C19553
Xeon E5-2660 v2	10	20	2.2 GHz	3 GHz	25MB	8 GT/s	95 W	DDR3-1866	0C19551
Xeon E5-2650 v2	8	16	2.6 GHz	3.4 GHz	20MB	8 GT/s	95 W	DDR3-1866	0C19552
Xeon E5-2650L v2	10	20	1.7 GHz	2.1 GHz	25MB	7.2 GT/s	70 W	DDR3-1600	0C19554
Xeon E5-2640 v2	8	16	2 GHz	2.5 GHz	20MB	7.2 GT/s	95 W	DDR3-1600	0C19555
Xeon E5-2630 v2	6	12	2.6 GHz	3.1 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19558
Xeon E5-2630L v2	6	12	2.4 GHz	2.8 GHz	15MB	7.2 GT/s	60 W	DDR3-1600	0C19556
Xeon E5-2620 v2	6	12	2.1 GHz	2.6 GHz	15MB	7.2 GT/s	80 W	DDR3-1600	0C19557
Xeon E5-2609 v2	4	4	2.5 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19559
Xeon E5-2603 v2	4	4	1.8 GHz		10MB	6.4 GT/s	80 W	DDR3-1333	0C19560

Notes:
All processors specifications is provided by Intel and may be changed at any time without notice. The information herein is provided "as-is".
Intel may update this information in non-scheduled. For latest information, please see http://ark.intel.com/

Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMM sockets	twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory capacity	Up to 320GB (16GBx20)
Memory protection	ECC, memory mirroring, memory sparing

Memory options

Memory options	Part Number
ThinkServer 4GB DDR3L-1600MHz (1RX8) RDIMM	0C19533
ThinkServer 8GB DDR3L-1600MHz (2RX8) RDIMM	0C19534
ThinkServer 16GB DDR3L-1600MHz (2RX4) RDIMM	0C19535

Notes:
- *Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs*
- *By default, the voltage of LV RDIMM is 1.5V and can be changed to1.35V in BIOS setting*
- *When using Intel Xeon E5-2600 series processors, LV RIMM is needed to run at 1.5V to support all 20 memory DIMM sockets. If LV RIMM runs at 1.35V, only 16 memory DIMM sockets are functional (8 of 12 for CPU 1, 8 for CPU 2)*

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ThinkServer RD640 Optional Configurations - Storage and RAID

Disk drive bays

Supports one of the following configurations:
- 8 x 3.5" SAS/SATA disk drive bays
- 8 x 2.5" SAS/SATA disk drive bays
- 16 x 2.5" SAS/SATA disk drive bays

Disk drive options

Disk drive options	Part Number
Hot-swap Disk drive for 3.5" bay	
3.5" SATA Hard Drive	
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89473
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89474
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89475
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0A89477
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19520
3.5" SAS Hard Drive	
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
ThinkServer 3.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2616
ThinkServer 3.5" 600GB 15K SAS 6Gbps Hot Swap Hard Drive	67Y2618
2.5" SSD for 3.5" disk bay	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive to 3.5" Kit	0C19571
ThinkServer 2.5" 200GB MLC SATA Solid State Drive to 3.5" Kit	0C19572
ThinkServer 2.5" 400GB MLC SATA Solid State Drive to 3.5" Kit	0C19573
Hot-swap Disk drive for 2.5" bay	
2.5" SATA Hard Drive	
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19495
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hot Swap Hard Drive	0C19496
2.5" SAS Hard Drive	
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2619
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hot Swap Hard Drive	67Y2621
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hot Swap Hard Drive	0A89409
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hot Swap Hard Drive	0C19494
2.5" SSD	
ThinkServer 2.5" 100GB MLC SATA Solid State Drive	0A89420
ThinkServer 2.5" 200GB MLC SATA Solid State Drive	0A89418
ThinkServer 2.5" 400GB MLC SATA Solid State Drive	0A89419

RAID support

RAID adapter	RAID support	Device Support	Cache	Host bus type	Data transfer rates (per port)	Optional upgrades
ThinkServer RAID 500 (LSI® SAS 9240-8i)	0, 1, 10	SAS/SATA		PCI Express	6Gb/s	optional upgrade key, add RAID 5, 50 support
ThinkServer RAID 700 (LSI SAS 9260-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	512MB	PCI Express	6Gb/s	optional intelligent Battery Backup Unit (iBBU08)
ThinkServer RAID 710 (LSI SAS 9270CV-8i)	0, 1, 10, 5, 50, 6, 60	SAS/SATA	1GB	PCI Express	6Gb/s	• optional CacheVault flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath

RAID options

RAID controller and RAID upgrade options	Part Number
ThinkServer RAID 500 Adapter II	0A89464
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407
ThinkServer RAID 700 Adapter II	0A89463
ThinkServer RAID 700 Battery	67Y2647
ThinkServer RAID 710 Adapter	0C19489
ThinkServer RAID 710 Super Capacitor Module (CacheVault)	0C19490
ThinkServer RAID 710 FastPath Software Key	0C19491
ThinkServer RAID 710 CacheCade Pro 2.0 Software Key	0C19492

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ThinkServer RD640 Optional Configurations - Network, System Management, Power Supply

Network options	Network and HBA options	Part Number
	ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel	0C19506
	ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel	0C19507
	Lenovo 10Gbps Ethernet X540-T2 Server Adapter by Intel	0C19497
	Lenovo 10Gbps Ethernet X520-DA2 Server Adapter by Intel	0C19486
	Lenovo 10Gbps Ethernet Fiber Module by Intel	0C19488
	Lenovo 10Gbps Ethernet X520-SR2 Server Adapter by Intel	0C19487
	ThinkServer QLE8242-CU-CK Dual Port CNA by QLogic	0C19483
	HBA	
	ThinkServer LPe1250 Single Port 8Gb Fibre Channel HBA by Emulex	0C19476
	ThinkServer LPe12002 Dual Port 8Gb Fibre Channel HBA by Emulex	0C19478
Security options	Trusted Platform Module options	Part Number
	ThinkServer Trusted Platform Module	0A89428
Systems management options for iKVM	System Management options	Part Number
	ThinkServer Management Module Premium	67Y2624
Power supply options	Power supply options	Part Number
	ThinkServer 800W Gold Hot Swap Redundant Power Supply for Rack	4X20E54690

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ThinkServer RD640 Services Upgrade Options

Partial list of Lenovo Services for ThinkServer RD540 with 3-year onsite base warranty models
For more information see: **http://www.lenovo.com/services_warranty/us/en/lenovo-warranty.html**

Upgrade Service Description	Part Number
Warranty	
3YR Onsite 24x7x4 Hour Response	5WS0F15458
3YR Onsite 24x7x8 Hour Response	5WS0F15392
3YR Onsite 9x5x4 Hour Response	5WS0F15355
4YR Onsite 24x7x4 Hour Response	5WS0F15443
4YR Onsite 24x7x8 Hour Response	5WS0F15395
4YR Onsite 9x5x4 Hour Response	5WS0F15394
4YR Onsite NBD	5WS0F15415
5YR Onsite 24x7x4 Hour Response	5WS0F15377
5YR Onsite 24x7x8 Hour Response	5WS0F15440
5YR Onsite 9x5x4 Hour Response	5WS0F15430
5YR Onsite NBD	5WS0F15419
Keep Your Drive (KYD) Service	
3YR Keep Your Drive	5PS0F15436
3YR Onsite 24x7x4 Hour Response + KYD	5PS0F15376
3YR Onsite 24x7x8 Hour Response + KYD	5PS0F15349
3YR Onsite 9x5x4 Hour Response + KYD	5PS0F15448
4YR Onsite 24x7x4 Hour Response + KYD	5PS0F15389
4YR Onsite 24x7x8 Hour Response + KYD	5PS0F15359
4YR Onsite 9x5x4 Hour Response + KYD	5PS0F15456
4YR Onsite NBD + KYD	5PS0F15459
5YR Onsite 24x7x4 Hour Response + KYD	5PS0F15402
5YR Onsite 24x7x8 Hour Response + KYD	5PS0F15381
5YR Onsite 9x5x4 Hour Response + KYD	5PS0F15366
5YR Onsite NBD + KYD	5PS0F15391
Priority Technical Support	
3YR KYD + Priority Support	5PS0F15417
3YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15352
3YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15399
3YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15444
3YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15418
3YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15398
3YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15468
3YR Priority Support	5WS0E76471
4YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15462
4YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15410
4YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15433
4YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15425
4YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15400
4YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15351
4YR Onsite NBD + KYD + Priority Support	5PS0F15373
4YR Onsite NBD + Priority Support	5WS0F15401
4YR Priority Support	5WS0E77170
5YR Onsite 24x7x4 Hour Response + KYD + Priority Support	5PS0F15350
5YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15412
5YR Onsite 24x7x8 Hour Response + KYD + Priority Support	5PS0F15471
5YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15447
5YR Onsite 9x5x4 Hour Response + KYD + Priority Support	5PS0F15437
5YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15382
5YR Onsite NBD + KYD + Priority Support	5PS0F15388
5YR Onsite NBD + Priority Support	5WS0F15463
5YR Priority Support	5WS0E77173
Post Warranty	
1YR Onsite 24x7x4 Hour Response	5WS0F15435
1YR Onsite 24x7x4 Hour Response + Priority Support	5WS0F15370
1YR Onsite 24x7x8 Hour Response	5WS0F15427
1YR Onsite 24x7x8 Hour Response + Priority Support	5WS0F15361
1YR Onsite 9x5x4 Hour Response	5WS0F15416
1YR Onsite 9x5x4 Hour Response + Priority Support	5WS0F15348
1YR Onsite NBD	5WS0F15407
1YR Onsite NBD + Priority Support	5WS0F15465
TopSeller Priority (TopSeller models only)	
3YR Onsite 24x7x4 Hour Response	5WS0D73789
3YR Onsite 9x5x4 Hour Response	5WS0D73787
4YR Onsite 24x7x4 Hour Response	5WS0D73792
4YR Onsite 9x5x4 Hour Response	5WS0D73791
4YR Onsite NBD	5WS0F15470
3YR Onsite 24x7x4 Hour Response+Priority Support	5WS0F15414
3YR Onsite 9x5x4 Hour Response+Priority Support	5WS0F15423
3YR Priority Support	5WS0E76457
4YR Priority Support	5WS0E76482

Note:

24x7x4: 4 Hour Onsite Response Time in 24x7 Service Window
(requires Location Activation)

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.
- Best coverage for business critical work loads

9x5x4: 4 Hour Onsite Response Time in 9x5 Service Window
(requires Location Activation)

- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 4 hours.

24x7x8: 8 Hour Onsite Response Time in 24x7 Service Window
(requires Location Activation)

- 24 hours a day, 7 days a week, including nights and weekends
- Once the need for on-site presence is confirmed, an on-site technician is dispatched to arrive within 8 hours.

Priority Technical Support

Lenovo's Priority Technical Support provides direct access to an advanced level technician supporting all of hardware, operating system and software needs related to server issues, available 24 hours a day, 7 days a week.

Keep Your Drive (KYD) Service

Retain drive (hard drive or SSD) and confidential data if the drive must be replaced.

To confirm if 4hr services are available in a specified location, please use ThinkServer Service Availability Tool:
http://www.lenovo.com/services_warranty/us/en/locator.html
Once purchased, to activate the location of your 4hr/8hr ThinkServer Service, please use ThinkServer Service Activation page: http://www.lenovo.com/activation

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ThinkServer RD640 (70AY) - TopSeller

Product Specifications Reference (PSREF)

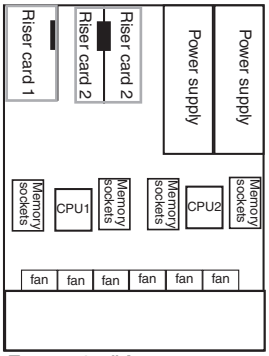
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AY0001US	2xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	4GBx20	8x3.5"	RAID710 +CacheVault +CacheCade	2x400GB SSD(cache,RAID1) +6x1TB 3.5" SAS(RAID50)	DVD±RW	IDM Premium	iKVM	X520SR2 +350T2 +350T2	Cable	800Wx2	Standard	1
70AY0002UX	2xE5-2670 v2 10C/2.5GHz/ 25MB/1866MHz	16GBx4	8x3.5"	RAID500 +Upgrade	6x3TB 3.5" SATA(RAID50) +2x3TB 3.5" SAS(RAID1)	DVD±RW	IDM	IPMI	350T4	No	800Wx2	No	1
70AY0003UX	1xE5-2630L v2 6C/2.4GHz/ 15MB/1600MHz	8GBx2	8x3.5"	RAID700	2x500GB 3.5" SATA(RAID1)	No	IDM	IPMI	350T2	No	800Wx2	No	1
70AY0005UX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	8x3.5"	RAID500	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AY0006UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AY0007UX	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AY0008UX	1xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

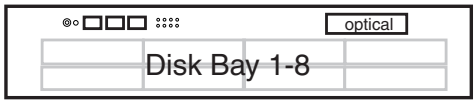
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications - Specifications of Standard Models* sheet

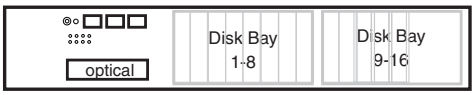
2U Rack top



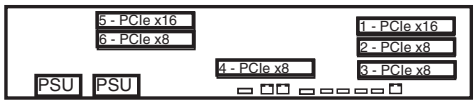
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70AY) - TopSeller (August 2014)

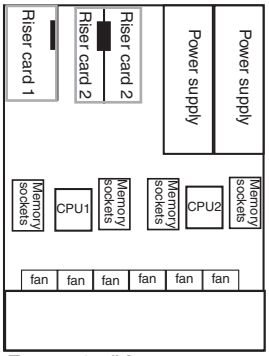
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AY000HUS	Xeon E5-2640 v2 8C/2GHz/20MB/1600MHz	16GBx4 1866MHz	8x3.5"	RAID500	2x500GB 3.5" SATA (RAID 1)	DVD±RW	IDM Premium	iKVM	350T2	No	800Wx2	R2 Datacenter	3
70AY000JUX	Xeon E5-2630 v2 6C/2.6GHz/15MB/1600MHz	8GBx1 1600MHz	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

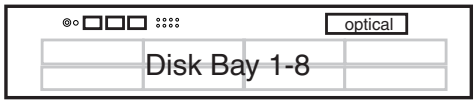
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications - Specifications of Standard Models* sheet

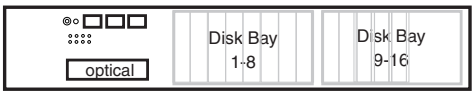
2U Rack top



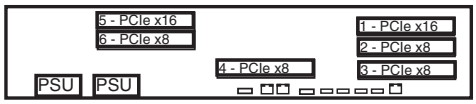
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70B1) - TopSeller

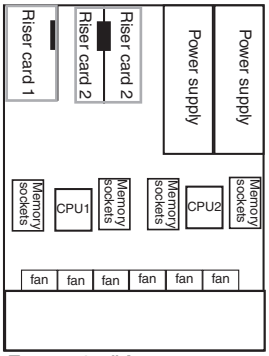
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B10000US	2xE5-2630 v2 6C/2.6GHz/ 15MB/1600MHz	16GBx4	8x2.5"	RAID700 +Battery	3x300GB 2.5" SAS(RAID5)	DVD±RW	IDM	iKVM	350T2	Cable	800Wx2	Standard	1
70B10004UX	1xE5-2609 v2 4C/2.5GHz/ 10MB/1333MHz	8GBx1	8x2.5"	RAID500	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10005UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10006UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x2.5"	RAID710	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10007UX	1xE5-2640 v2 8C/2GHz/ 20MB/1600MHz	8GBx1	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10008UX	1xE5-2670 v2 10C/2.5GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID710	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70B10009UX	1xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx1	8x2.5"	RAID710	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. *Model in italics is Global model*

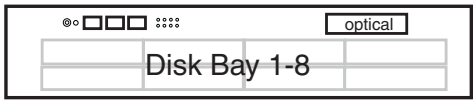
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

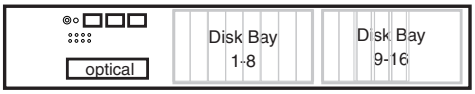
2U Rack top



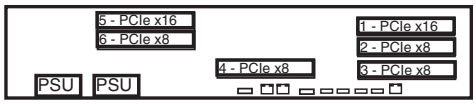
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



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Slot 5-6 are available on dual processors models:
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Slot 6: half-length, full-height, PCIe 3.0 x8

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- 2U rack with rail kit
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ThinkServer RD640 (70B1) - TopSeller (August 2014)

Product Specifications Reference (PSREF)

Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B1001CUX	Xeon E5-2630 v2 6C/2.6GHz/15MB/1600MHz	8GBx1 1600MHz	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

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- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

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Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
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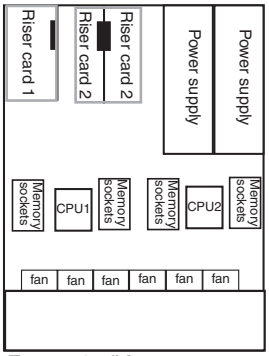
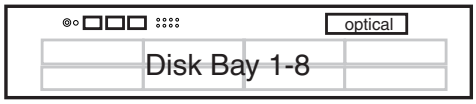
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

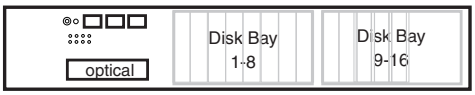
2U Rack top



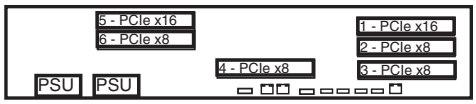
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



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Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70B0) - TopSeller

Product Specifications Reference (PSREF)

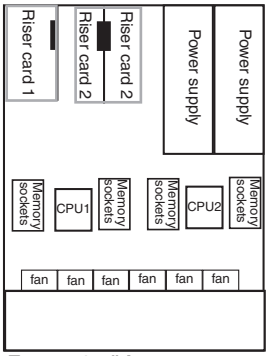
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B00003US	2xE5-2690 v2 10C/3GHz/ 25MB/1866MHz	8GBx19+ 4GBx1	16x2.5"	RAID710 +CacheCade	2x100GB SSD(cache,RAID1) +14x1TB 2.5" SATA(RAID50)	DVD	IDM Premium	iKVM	X520SR2 +350T4+350T4	Cable	800Wx2	Standard	1
70B00004US	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	4GBx2	16x2.5"	RAID500	2x900GB 2.5" SAS(RAID1)	No	IDM	IPMI	350T4	No	800Wx2	Standard	1
70B0000FUX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID700 +Battery	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3
70B0000GUX	1xE5-2650 v2 8C/2.6GHz/ 20MB/1866MHz	8GBx1	16x2.5"	RAID710	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. *Model in italics is Global model*

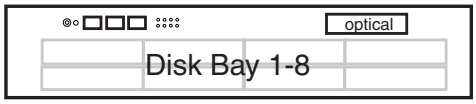
- ***For detailed platform specifications, please see** ThinkServer RD640 Platform Specifications **sheets***
- ***For optional configurations of ThinkServer RD640, please see** ThinkServer RD640 Optional Configurations sheets*

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

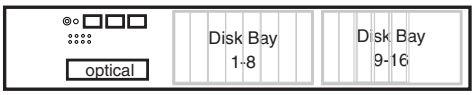
2U Rack top



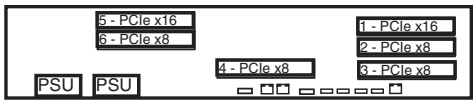
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70B0) - TopSeller (November 2013)

Product Specifications Reference (PSREF)

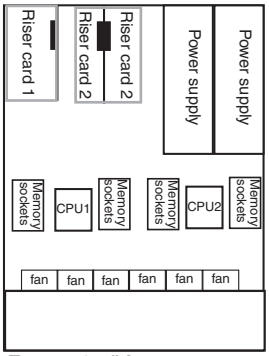
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B0000LUX	1xE5-2650v2 8C/2.6GHz /20MB/1866MHz	8GBx1	16x2.5"	RAID710	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

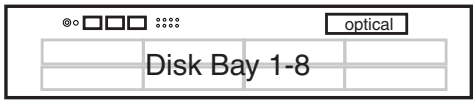
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications

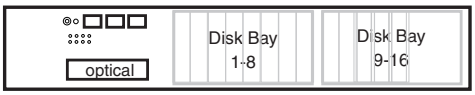
2U Rack top



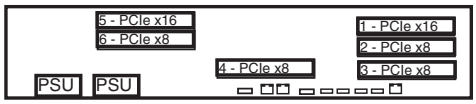
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70B0) - TopSeller (August 2014)

Product Specifications Reference (PSREF)

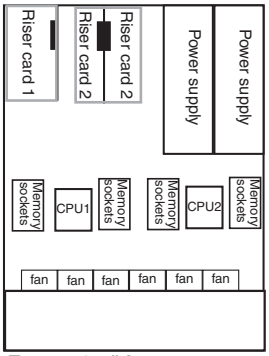
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70B00017UX	Xeon E5-2630 v2 6C/2.6GHz/15MB/1600MHz	8GBx1 1600MHz	16x2.5	RAID700	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3

1. *Model in italics is Global model*

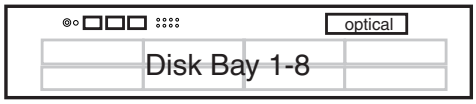
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see ThinkServer RD640 Platform Specifications

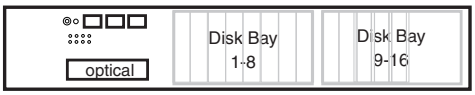
2U Rack top



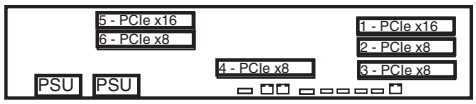
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70AV)

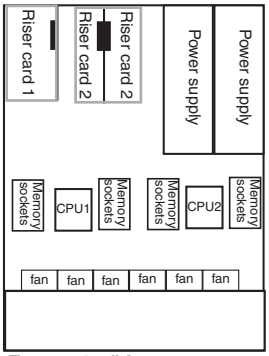
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AV0000UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x3.5"	RAID500	Open	DVD±RW	IDM Premium	IPMI	No	No	800Wx1	No	3
70AV0001UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	8x3.5"	RAID700	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. *Model in italics is Global model*

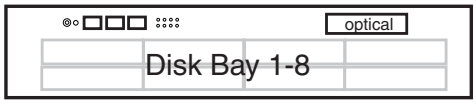
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

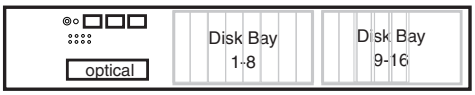
2U Rack top



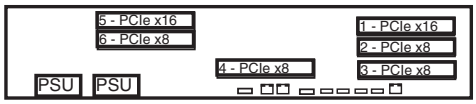
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70AX)

Product Specifications Reference (PSREF)

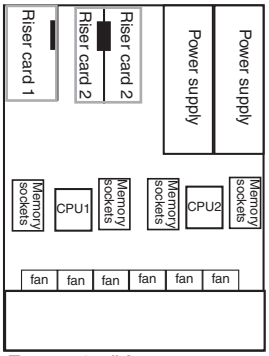
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AX0000UX	1xE5-2620 6C/2GHz/ 15MB/1333MHz	8GBx1	8x2.5"	RAID700	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. *Model in italics is Global model*

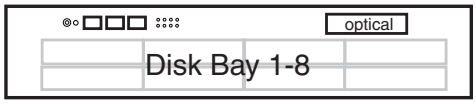
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

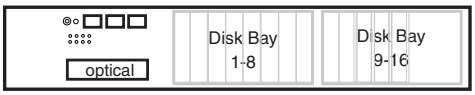
2U Rack top



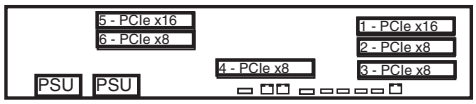
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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ThinkServer RD640 (70AW)

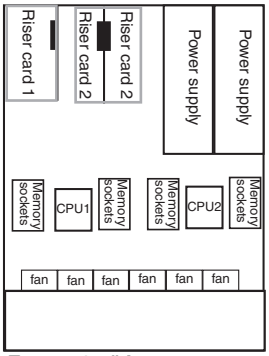
Type-model[1]	Intel Xeon Processor(s)	Memory	Disk Bays	RAID controller	Storage	Slim optical	Intelligent Diagnostics	Remote mgmt	Discrete ethernet	Cable mgmt	PSU	Windows Server 2012 Preloaded	Base on-site warranty (-year)
70AW0005UX	1xE5-2620 v2 6C/2.1GHz/ 15MB/1600MHz	8GBx1	16x2.5"	RAID700	Open	DVD±RW	IDM Premium	iKVM	No	No	800Wx1	No	3

1. *Model in italics is Global model*

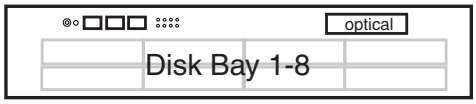
- ***For detailed platform specifications, please see ThinkServer RD640 Platform Specifications sheets***
- ***For optional configurations of ThinkServer RD640, please see ThinkServer RD640 Optional Configurations sheets***

Chipset	Intel C602J Chipset, two LGA2011 sockets for processors
Memory type	RDIMM, DDR3, 4-channel per processor, 240-pin
Memory DIMMs	Twenty DIMM sockets (12 sockets for CPU 1, 8 sockets for CPU 2)
Memory protection	ECC, memory mirroring, memory sparing
Disk drive bays	Supports 8 x 3.5", or 8 x 2.5", or 16 x 2.5" disk drive bays
RAID support	RAID adapter* / RAID support / Cache / Transfer rates / Optional upgrades RAID 500 (LSI® 9240-8i) / 0, 1, 10 / / 6Gb/s / optional upgrade key, add RAID 5, 50 support RAID 700 (LSI 9260-8i) / 0, 1, 10, 5, 50, 6, 60 / 512MB / 6Gb/s / optional intelligent Battery Backup Unit (iBBU08) RAID 710 (LSI 9270CV-8i) / 0, 1, 10, 5, 50, 6, 60 / 1GB / 6Gb/s / • optional CacheVault (CV) flash cache with super capacitor • optional CacheCade® Pro 2.0 • optional FastPath key * All RAID adapters supports SAS and SATA drives
Optical (optional)	One DVD±RW or DVD ROM, slim, SATA interface
Onboard network	Three onboard Gigabit Ethernet ports (RJ-45): Two Gigabit Ethernet ports by Intel i350; one Gigabit Ethernet port by Intel 82574L, dedicate/share management
Discrete network (optional)	• Intel Ethernet Server Adapter I350-T2 • Intel Ethernet Server Adapter I350-T4 • Intel 10Gbps Ethernet X520-SR2 Server adapter • Intel 10Gbps Ethernet X520-DA2 Server adapter • Intel 10Gbps Ethernet Fiber Module for X520-DA2 adapter • Intel 10Gbps Ethernet X540-T2 Server adapter
Intelligent Diagnostics Module (IDM, opt)	Supports IDM or IDM Premium on selected models, IDM LED lights indicate failing component category, IDM Premium LED lights indicate individual failing part
Security features	Power-on password/administrator password, Trusted Platform Module (TCG 1.2-compliant)
Systems management (Optional iKVM)	• Onboard Aspeed AST2300 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC); optional ThinkServer Management Module Premium for iKVM functions • Control Panel LEDs shows the status of power, ID, network, system • Lenovo SmartGrid Manager • ThinkServer EasyStartup/EasyManage/EasyUpdate
Cable mgmt (opt)	Optional cable management arm on selected models
Power supply	One or two 800 watts standard, two maximum, rear access, hot-swap, 80 PLUS® Gold qualified, redundant with two power supplies
Environmental certifications	• Energy Star Server 2.0 qualified • RoHS-compliant More environmental information and requirements, please see *ThinkServer RD640 Platform Specifications*

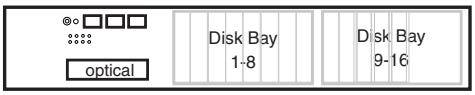
2U Rack top



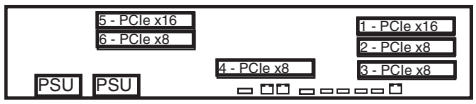
Front - 3.5" bay



Front - 2.5" bay *(Bay 9-16 comes with 16x2.5" models)*



Rear



Front and Rear Ports

Front: 2 USB 2.0, 1 VGA
Rear: 4 USB 2.0, 1 serial (9-pin), 2 ethernet (RJ-45), 1 RJ-45 (dedicate/share mgmt), 1 VGA

Expansion Slots

Slot 1: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 2: half-length, full-height, PCIe 3.0 x8
Slot 3: half-length, full-height, PCIe 3.0 x8
Slot 4: Low Profile, PCIe 3.0 x8
Slot 5-6 are available on dual processors models:
Slot 5: half-length, full-height, PCIe 3.0 x16 (x8 elec)
Slot 6: half-length, full-height, PCIe 3.0 x8

Mechanical

- 2U rack with rail kit
- 19"W x 28.9"D x 3.45"H (with rack handles)
- 482.4mm W x 734mm D x 87.6mm H (with rack handles)
- 26.5 kg (58.42 lb) when fully configured

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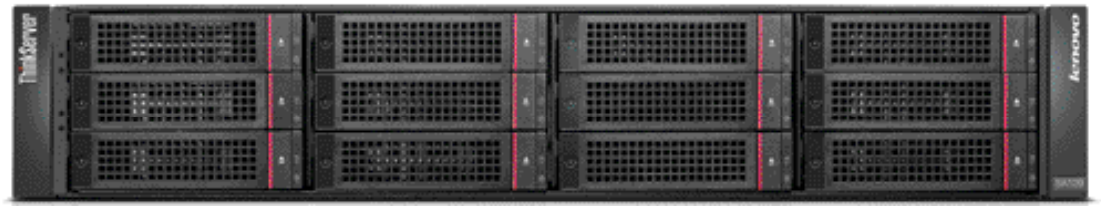
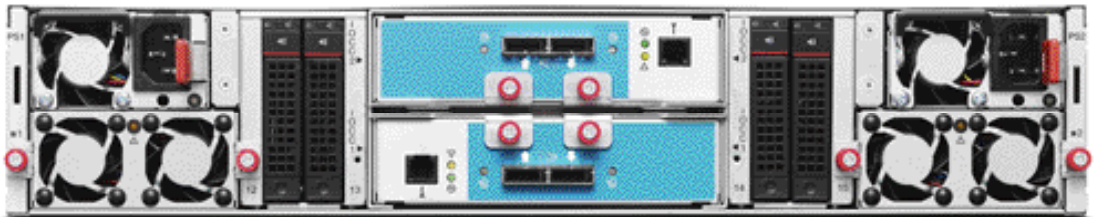
ThinkServer SA120 Direct Attached Storage Photography



Front View

Rear View
(With optional 2nd I/O module and 2nd power supply)



Rear View
(With optional 4 x 2.5" SATA SSD hot-swap disk drive bays, 2nd I/O module, and 2nd power supply)

ThinkServer SA120 Direct Attached Storage - Standard Models

Type	Type-model	I/O Module (1 or 2)	Front 12 x 3.5" disk bays for SAS disk drives	Rear 4 x 2.5" disk bays for SATA SSD	Front 3.5" SAS hot-swap drives (up to 12)	Rear 2.5" SATA SSD hot-swap drives (up to 4)	External minSAS Cable (SFF8088 to SFF8088)	Power Supply (1 or 2)	Rail kit	Base Warranty	Ann Date (mm/yy)
70F0	70F00000UX	1	12 x 3.5"	No	Open	No	1 x 1m	1 x 550W	Rail kit	3	02/14
70F0	70F00001UX	1	12 x 3.5"	No	12 x 1TB 3.5" SAS	No	1 x 1m	1 x 550W	Rail kit	3	02/14
70F0	70F00002UX	2	12 x 3.5"	No	12 x 2TB 3.5" SAS	No	2 x 1m	2 x 550W	Rail kit	3	02/14
70F0	70F00003UX	2	12 x 3.5"	No	12 x 4TB 3.5" SAS	No	2 x 1m	2 x 550W	Rail kit	3	02/14
70F1	70F10000UX	1	12 x 3.5"	No	Open	No	1 x 1m	1 x 550W	Rail kit	3	02/14
70F1	70F10001UX	2	12 x 3.5"	No	Open	No	2 x 1m	2 x 550W	Rail kit	3	02/14
70F1	70F10006UX	2	12 x 3.5"	No	12 x 2TB 3.5" SAS	No	2 x 1m	2 x 550W	Rail kit	3	05/14
70F1	70F10007UX	2	12 x 3.5"	No	12 x 4TB 3.5" SAS	No	2 x 1m	2 x 550W	Rail kit	3	05/14

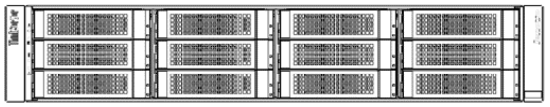
70F0: Relationship models *70F1:TopSeller models*

Connection mode	Connects directly to host server, up to 4 enclosures per port (cascading mode)
Compatible host server and RAID controllers/Host Bus adapters	Supports the following RAID controller or Host Bus adapters on compatible host servers, RAID levels are supported by RAID controller on host server:

RAID/HBA adapters	PN	TD340 RD340 RD440 RD540 RD640	RD330 RD430 RD530 RD630
LSI 9280-8e 6Gb SAS RAID HBA by LSI (0/1/10/5/50/6/60)	4XB0F28645	Yes	Yes
LSI 9286CV-8e 6Gb SAS RAID HBA by LSI (0/1/10/5/50/6/60)	4XB0F28646	Yes	

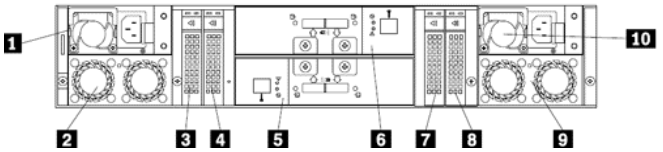
I/O Module	Supports 1 or 2 ThinkServer Storage Array 6Gbps I/O Modules, redundant with two I/O modules
Front 3.5" Disk Bays	12 x 3.5" SAS hard drive bays, hot-swap, supports 1TB/2TB/3TB/4TB 3.5" SAS 6.0Gb/s 7200 rpm hard drives
Rear 2.5" Disk Bays (optional)	Optional 4 x 2.5" SATA SSD hot-swap disk drive bays. Requires optional ThinkServer 2.5" SATA SSD Cage with SATA Interposers (4XF0F28766, includes two SSD cages for 4 bays)
Maximum storage per enclosure	Front 3.5" Disk Bays: up to 48TB (using 12 x 4TB 3.5" SAS hard drives) Optional rear 2.5" Disk Bays: up to 3.2TB (using 4 x 800GB 2.5" SSD drives)
External minSAS Cable (option)	Optional 0.5m/1.0m/2.0m/4.0m/6.0m SFF8088 to SFF8088 26-pin Mini-SAS cables
Fan module	Two fan modules standard, hot-swap, redundant, two fans per fan module
Power supply	One or two 550 watts standard, two maximum, rear access, hot-swap, 80 PLUS Gold qualified, redundant with two power supplies
Rail kit	Includes static rail kit for rack mount
Systems Management	• SCSI Enclosure Services (SES) command set • Enclosure management via IOCC controller • Includes one RS232 to RJ11 cable for remote debug and firmware upgrade
Mechanical	• 2U rack, static rail kit included • 19"W x 15.51"D x 3.4"H (with rack handles) • 482.6mm W x 394.05mm D x 86.6mm H (with rack handles) • 22 kg (48.5 lb) when fully configured
Environment	• **Air temperature:** Operating: 10°C to 35°C (50°F to 95°F) Storage: -40°C to 70°C (-40°F to 158°F) in original package • **Altitude:** 0-10000ft (0-3048m), unpressurized • **Humidity:** Operating: 8% to 80% (non-condensing) Storage without package: 8% to 80% (non-condensing) Storage with package: 8% to 90% (non-condensing)

Front



12 x 3.5" hot-swap SAS disk drive bays

Rear



1	Power Supply 1	5	I/O module 1
2/9	Fan modules	6	I/O module 2 (optional)
3/4/7/8	Rear 4 x 2.5" SATA SSD drive bays (optional)	10	Power Supply 2 (optional)

Rear Ports (per I/O module)

1 SAS (SFF8088) IN connector for connection to host server
1 SAS (SFF8088) OUT connector for connection to another enclosure
1 RJ-11 port for remote debug and firmware upgrade

Core Options

3.5" 1TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19530
3.5" 2TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19531
3.5" 3TB 7.2K SAS 6Gbps Hot Swap Hard Drive	0C19532
3.5" 4TB 7.2K SAS 6Gbps Hot Swap Hard Drive	4XB0F28635
3.5" 6TB 7.2K SAS 12Gbps Hot Swap Hard Drive	4XB0F28683
2.5" 100GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28636
2.5" 200GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28637
2.5" 400GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28638
2.5" 800GB Mainstream Multipurpose SATA 6Gbps Hot Swap SSD	4XB0F28639
2.5" 120GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28615
2.5" 240GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28616
2.5" 300GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28640
2.5" 480GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28617
2.5" 800GB Value Read-Optimized SATA 6Gbps Hot Swap SSD	4XB0F28641
550W Gold Hot Swap Redundant Power Supply	4X20E54689
ThinkServer Storage Array 6Gbps IO Module	4XF0F28765
ThinkServer 2.5" SATA SSD Cage with SATA Interposers (includes two SSD cages for 4 bays)	4XF0F28766
0.5 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31494
1 meter 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31495
2 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31496
4 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31497
6 meters 26 Pin (SFF-8088 to SFF-8088) External mini-SAS cable	4X90F31498

See footnotes for more detailed information

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Withdrawn Product Books

Disclaimer
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PSREF books for the withdrawn systems:
http://www.lenovo.com/psref/psrefs_withdrawn.html

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

Warranty: For a copy of applicable product warranties, write to: Warranty Support Dept., EMEA Services, Lenovo, Eisteinova 21, 851 01 Bratislava, Slovakia. Lenovo makes no representation or warranty regarding third party products or services.

[1] **Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.

[2] **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity is less.

[3] **Systems with limited onsite service** are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. Support unrelated to a warranty issue may be subject to additional charges. Support phone list available at www-307.ibm.com/pc/support/site.wss/document.do?lndocid=MIGR-70552

[4] **SATA/SAS:** The system configuration supports the installation of either SATA or SAS disks. A configuration including both SATA and SAS disks is not supported.

[7] **Lenovo Services:** These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. See Lenovo Warranty Services terms and conditions for complete details and restrictions.

[8] **RAID:** Supported RAID levels for a system will vary from the stated capabilities of the RAID controller due to dependencies on the number and capacity of physical disks in the system and on customer requirements for performance, fault tolerance, or data redundancy.
RAID levels and requirements:

- *RAID 0 (striping)* provides increased performance by writing data across multiple drives.
- *RAID 1 (mirroring)* provides fault tolerance by writing the data on two drives.
- *RAID 5 (striping with parity)* uses distributed parity data to provide fault tolerance more efficiently than RAID 1. Requires three or more drives.
- *RAID 6 (striped set with dual distributed parity)* provides fault tolerance from two drive failures; array continues to operate with up to two failed drives. Requires four drives.
- *RAID 10 (or RAID 1+0)* combines RAID 1 and RAID 0 to create a stripe of mirrors that is fault tolerant while offering increased performance. Requires four drives.
- *RAID 50 (or RAID 5+0)* combines RAID 5 and RAID 0 to create block-level striping with distributed parity improving performance over RAID 5. Requires six drives.
- *RAID 60 (or RAID 6+0)* combines RAID 6 and RAID 0 to create block-level striping with distributed double parity improving performance over RAID 6. Requires eight drives.

[14] **Response times may vary.** Response time is an average target and comitted service level. May exclude some holidays. Telephone support may be subject to additional charges.

ThinkServer™

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